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ABSTRACT

This monograph includes the final report of the International Expert Meeting on the Promotion of Equal Access of Girls and Women to Technical and Vocational Education (TVE) held in Seoul, Republic of Korea, and country discussion papers. The final report is composed of an introduction that proposes that many Member States require special measures to ensure genuine equality of opportunity for males and females; description of the opening ceremony; and "Synthesis of the Country Experience" that highlights patterns that emerged. "Discussion on the Major Issues" separates strategies for future actions into four areas: TVE aspects of general education; TVE and training as preparation for an occupation; TVE as continuing education; and employment and social environment. A "Statement for the Beijing Conference" is followed by a participant list. The 14 country discussion papers submitted by participants describe "Promotion of the Equal Access of Girls and Women to Technical and Vocational Education" in each country. The countries and authors are as follows: Botswana (Marianne Nganunu); Kenya (B. Wanjala Kerre); Australia (Miriam Daley); China (Yu Zu-Guang); India (Arun Mishra and others); Japan (Suzuko Oki); Malaysia (Maimunah Ismail); Republic of Korea (Young-Hwa Kim); Czech Republic (Fratisek Bartak); Germany (Helga Foster, Angelika Puhlmann); Sweden (Nils Friberg, Marianne Lindberg); Turkey (Saban Yildirim); Argentina (Irma C. Briasco); and Brazil (Sonia Ana Leszczynski). Appended is the paper, "Barriers to Participation of Women in Technological Education" (Karen Evans). Some chapters and the paper contain references. (YLB)

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Studies on Technical and Vocational Education ◆7

Promotion of the Equal Access of Girls and Women to Technical and Vocational Education

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Promotion of the Equal Access of Girls and Women to Technical and Vocational Education

Section for Technical and Vocational Education
Education Sector
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1996

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Dedication

This monograph is dedicated to the late Miss Akemi FUJIU (1970-1995) who, as an Assistant Programme Specialist of UNESCO from 1994 to 1995, contributed greatly to the UNEVOC Project and particularly to the preparation of this monograph.

Forward

This UNEVOC publication is addressed to policy-makers, administrators, planners, teachers, specialists and all those interested in the issue of promotion of the equal access of girls and women to technical and vocational education.

Compiled by the Section for Technical and Vocational Education, UNESCO, Paris, this monograph includes the Final Report of the UNEVOC International Expert Meeting on the Promotion of Equal Access of Girls and Women to Technical and Vocational Education held in Seoul, Republic of Korea, in July 1995 and the country discussion papers submitted by the participants of this event. A paper on the barriers to women's participation in technical and vocational education is also attached for the readers' interest. Due to the limited space available, and as agreed by the authors, the papers were simplified by the editor.

UNESCO wishes to express its appreciation to all those who contributed their work to this publication.

The views expressed in the papers of this monograph are those of the individuals concerned and do not necessarily reflect those of UNESCO. The designations employed and the presentation of the material do not imply the expression of any opinion whatsoever on the part of the UNESCO Secretariat concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Preface

Women are one of UNESCO's priority target groups for action. Since its inception fifty years ago, UNESCO has endeavoured to improve the status of women, both in practice and in people's attitudes. Nevertheless, the continuing huge disparities, the influx of new forms of discrimination and the 'feminization of poverty' make it more than ever necessary to adopt measures and modalities of action to remedy this situation in order to meet the three main objectives of the Fourth World Conference on Women (Beijing, September 1995): equality, development and peace.

Taking its cue from the Beijing Conference's platform, UNESCO's *Medium-Term Strategy for 1996-2001* suggests three major directions which could act as guidelines for UNESCO's future action to secure gender equality. Firstly, efforts will be made for the mainstreaming of a gender perspective in all policy-planning, programming, implementation and evaluation activities. Secondly, due attention will be paid to the full utilization of women's competence, experience and potential. Thirdly, UNESCO will endeavour to develop specific programmes, projects and activities for the benefit of girls and women, geared towards promoting equality, endogenous capacity-building and women's full citizenship.

Technical and vocational education is crucial for the development of human resources where the important role developed upon girls and women has recently been highlighted for many social and economic reasons. Two normative instruments: the Revised Recommendation concerning Technical and Vocational Education (1974) and the Convention on Technical and Vocational Education (1989) have played a central part in UNESCO's campaign to ensure the equal access of girls and women to technical and vocational education.

In 1992, UNESCO launched its International Project on Technical and Vocational Education (UNEVOC), a solient aspect of which is the special attention paid to the needs of girls and women in the field of technical and vocational education, including numerous activities to assist the efforts of Member States in promoting the equal access of girls and women to this type of education.

The UNEVOC International Expert Meeting on the Promotion of Equal Access of Girls and Women to Technical and Vocational Education (Seoul, Republic of Korea, 10-15 July 1995), attended by representatives from fifteen countries of various regions of the world, was particularly useful. The forteen country discussion papers presented here reflect the current situation in these countries with diversified socio-economical, political, cultural and religious backgrounds. The meeting's Final Report also makes quite constructive reading.

The discussion papers indicate that many countries have legislation which provides for equal access to education; however, obstacles remain to equal access for girls and women to technical and vocational education. While statistics show an increased participation of girls and women, the percentage of female enrolment remains much lower than that of males, due in large part to a high drop-out rate and failure to go beyond primary or secondary-level schooling.

Another aspect which emerges is that female students, particularly at the secondary level, continue to enrol in fields traditionally reserved for women, such as commercial education, health and home economics, whereas their male counterparts are still the majority in the broader fields of industry, engineering and agriculture. Unfortunately, there has been little change in this situation during the period from 1980 to present.

The equality of access to technical and vocational education is a complicated issue, taking into consideration the many factors which determine the orientation of girls and women to this field. In order to contribute to the achievement of genuine equality, UNESCO's future action should be comprehensive. For instance, the provision of adequate educational and vocational guidance services can modify outlooks, thereby developing attitudes and behaviour which will lead to women's greater involvement in technical and vocational education and the world of work. Teachers sometimes convey images of stereotyped attitudes which can reproduce prejudice and discrimination in the minds of their male and female students. Mass media could help to rectify this situation by reporting on successful women in untraditional occupations, thereby promoting new models for the role of girls and women. Gender-sensitive curricula, textbooks and teaching/learning materials are needed. Considerable attention should be given to the increasing role of non-formal training for those excluded from the formal school system, as well as to the re-training of both employed and unemployed females.

Making equal rights for men and women a *de jure* and *de facto* reality in the field of technical and vocational education is an important facet of UNESCO's efforts to combat discrimination against women.

Paris
September, 1995

Colin N. Power
Assistant Director-General
for Education
UNESCO

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International Expert Meeting on the Promotion of Equal Access of Girls and Women to Technical and Vocational Education

(Seoul, Republic of Korea, 10-15 July 1995)

Final Report

International Expert Meeting on the Promotion of Equal Access of Girls and Women to Technical and Vocational Education

(Seoul, Republic of Korea, 10-15 July 1995)

Final Report

Introduction

Rapid socio-economic development requires greater participation of women in economic activities. In many countries the adoption of legislative measures have helped to remove discrimination in employment and education. In respect to technical and vocational education, it is worth noting that although legal steps have been taken to ensure the equal access of girls and women to such education, these measures are not frequently put into practice. This implies that many Member States require special measures in order to ensure the genuine equality of opportunity for both males and females.

UNESCO's policy to promote the equal access of girls and women to technical and vocational education is based on the Organization's normative instruments: the Revised Recommendation concerning Technical and Vocational Education (1974) and the Convention on Technical and Vocational Education (1989). As these instruments indicate, the continued persistence of inequality in this field calls for specific action on behalf of girls and women taking into account their particular needs and the obstacles to be overcome.

UNESCO launched its International Project on Technical and Vocational Education (UNEVOC) in 1992, the main objective of which is the development of technical and vocational education in the Member States, with special attention to the needs of girls and women in this field. Within the framework of the UNEVOC Project, regional and international activities have been organized to assist the efforts of UNESCO's Member States in this respect. More than 100 UNEVOC Centres established in 90 Member States have played a key role in the execution of these activities.

In accordance with UNESCO's Programme and Budget for 1994-1995 and within the framework of the UNEVOC Project, an *International Expert Meeting on the Promotion of Equal Access of Girls and Women to Technical and Vocational Education* was held, in collaboration with the Korean Manpower Agency (KOMA), at Seoul, Republic of Korea, from 10-15 July, 1995.

The main objective of this meeting was to assist the Member States in their efforts to this effect by facilitating the exchange of experience and ideas, as well as strengthening co-operation among the UNEVOC Centres in the Member States. It was attended by experts from fourteen (14) Member States including **Argentina, Australia, Botswana, Brazil, China, Czech Republic, Germany, India, Japan, Kenya, Malaysia, Republic of Korea, Sweden** and **Turkey**.

Opening Ceremony

The meeting was declared open by Dr. Colin POWER, Assistant Director-General for Education, representing the Director-General of UNESCO. Dr. POWER welcomed the participants and expressed sincere appreciation and gratitude to KOMA for hosting the expert meeting. He pointed out the remarkable economic miracle of the Republic of Korea as a case study in national development. Likewise, he stressed the concern of UNESCO about its continuous efforts to address the gender equity issue with the UNEVOC Project to enhance the participation of girls and women in technical and vocational education. Dr. POWER's opening address was concluded with expectations from the experts to provide recommendations related to the issue.

The election of Bureau was then held. Ms. Marianne NGANUNU (Botswana) was elected as chairperson while Dr. Young-Hwa KIM (Republic of Korea) and Ms. Helga FOSTER (Germany) were elected as vice-chairpersons, with Dr. Arun K. MISHRA (India) as the rapporteur. The provisional agenda of the meeting was then approved.

Mr. Jae-Suk KIM, President of KOMA, welcomed the participants and wished them success in the deliberation of the promotion of equal access of girls and women to technical and vocational education. He underlined the significant role of skill and technology in the economic and social development process of the world. Mr. KIM emphasized that the active participation of women in socio-economic development is a reality that should be recognized. Correspondingly, technical and vocational education and training for girls and women becomes imperative.

In his speech, Mr. Seung-Boo CHOI, Vice Minister of Labour of the Government of Republic of Korea, congratulated UNESCO for the timeliness of the theme, within the framework of promoting peace, security through international cooperation in education, science and culture. He recounted the marginalized condition of girls and women in the world simply because they are female and how the Korean women play a significant role in national development. His congratulatory speech reinforced the previous speakers support for the promotion of girls and women's access to technical and vocational education as a precondition to their active participation in the labour market. Likewise, he concluded with a wish for the participants to enjoy their stay in the Republic of Korea and bring home pleasant memories on this country.

After the informal introduction of the participants, Mr. Taeck-Duck KIM, Managing Director of KOMA (and member of UNEVOC International Advisory Committee) made a brief presentation on the history and activities of his Agency.

Dr. Iluminada ESPINO, UNESCO consultant for this meeting, explained the development framework which established the logical base for the international expert meeting. She highlighted the concepts and principles that must guide the formulation of initiatives to promote equal access of girls and women to technical and vocational education. Considering that this issue is not isolated but a part of a total and integrated development concern, a system development framework was proposed as a basis for comprehensive issue analysis, planning and management of gender-responsive concerns in technical and vocational education. It is important to look deeper into the analysis of the gender issue and discover the root cause as to why the participation of females in technical and vocational education is low in spite of institutional efforts to attract girls and women into this area.

Synthesis of the Country Experience

To appreciate conditions on the promotion of equal access of girls and women to technical and vocational education, in the participating Member States, each participant prepared a country discussion paper based on a set of guidelines provided by UNESCO. The following patterns emerged:

The situation regarding the promotion of equal access of girls and women to technical and vocational education is very similar in all participating Member States regardless of religion, culture and level of development. The problem of equal access of girls and women to technical and vocational education is a part of a bigger problem of the image accorded to technical and vocational education. This image is bound up in bigger social problems of poverty, illiteracy, unemployment and the rigidity of a traditional culture. As such, the promotion of girls and women's access to technical and vocational education should be approached in a multi-dimensional and integrated manner.

Education and employment are related. As the level of girls and women's education rises, the tendency for gainful employment increases. This tendency also however puts women at disadvantaged situation carrying the burden of their dual roles at home and at workplace in a traditional gender segregated culture. When a female vocational school graduate experiences difficulty in finding a job, experiences lower status and salary than her male counterpart, her perception of technical and vocational education diminishes and this unfavorably influences the access to technical and vocational education and the image of such education as a whole.

While legislative measures are necessary to provide equal access for girls and women to technical and vocational education, they are not in themselves a guarantee of success.

Recognizing that the promotion of equal access of girls and women to technical and vocational education is a comprehensive issue, it requires an inter-disciplinary approach to ensure the effective management of specific initiatives in technical and vocational education. A rational, comprehensive, systematic and coordinated planning and organization of activities directed to an accepted and shared goal is invariably needed to guide the monitoring and control of a specific initiative.

There have been modest improvements in girls and women's education and in employment related courses/careers, but gender segregation in education, employment and in society still exists. The cumulative net effect of interacting experiences at home, in school and at the workplace has a major influence on the choices made by girls and women in technical and vocational education and in related careers.

Finally, it is useful to recall that the issue of girls and women's access to technical and vocational education, is a problem of perception and attitude. Society's attitude towards technical and vocational education must be transformed and reoriented by incidental and deliberate means through the structure and quality of people's experiences.

Discussion on the Major Issues

During the meeting, the participants were separated into two groups to review a number of issues drawn from the 15 country reports. The strategies for future actions were discussed in the following four areas:

- Technical and vocational education aspects of general education;
- Technical and vocational education and training as preparation for an occupation;
- Technical and vocational education as continuing education; and
- Employment and social environment.

Both groups started by clarifying and stating their position that guided their deliberation. The agreed statement is:

> *Aware of the individual differences of people and recognizing the equal value of men and women's contribution to socio-economic development, it is well accepted that technical and vocational education plays a vital role in achieving social and economic equality for women.*
>
> *Women should not only be adjusted to the existing structures and societal patterns, rather the structures and systems must change to properly accommodate women.*
>
> *The empowerment of women should be the goal for all interventions which will lead to equality of gender status in society.*

Technical and Vocational Education Aspects of General Education

Science and Mathematics for Girls

1. The curriculum and methodology of essential subject areas which provide the foundation for technical and vocational education should be more attractive and interesting. Science and mathematics should be made more "alive" and taught in relation to the interest of students' daily lives and the real world of work. Girls should be provided with additional/special study.sessions as needed to enhance their understanding of specific science and mathematics lessons.

Vocational Subjects in General Education

2. The vocational aspects in general education should be promoted by sensitizing and training teachers, and restructuring curricular activities to recognize the vocational implication of basic subjects. Visits to various industries and exposure to relevant activities make the discussion (of these vocational aspects) in the classroom real.

Teachers as the Role Models

3. Teachers in the general and the vocational area must be informed of and sensitized to gender issues at various stages of teacher's training (pre-service and in-service) to shape their attitude and commitment to gender balanced behaviour, as well as to demonstrate dignity in work. The teacher must be a role model and should be able to show competence to teach in a gender-inclusive way.

Technical and Vocational Education and Training as Preparation for an Occupational Field

Gender Segregation in the Choice of Fields of Study

4. Gender neutrality must be practiced in the choice of fields of study to avoid gender segregation. It should be achieved by improving the teaching of the subjects traditionally taken by girls and encouraging girls and women to enroll those male dominated courses.

5. Teaching of the subjects traditionally taken by girls in technical and vocational education should be enhanced by updating its content and facilities; by bringing in a technological orientation such as computers and the use of other modern technology. This will not only attract girls but boys as well. Improving the learning environment for girls also contributes to better learning competencies which increase chances of employment for girls.

6. The participation of girls and women in new and male dominated courses should be enhanced by offering a wider choice of courses. The provision of suitable financial and non-monetary incentives, including success stories of women role models in these new and male dominate occupations/careers are helpful measures. Additionally, linking these new courses to market demand will make them more attractive to girls.

Educational and Vocational Guidance and Counselling

7. A more effective structure of educational and vocational guidance and counselling services in schools responsive to the issue has to be instituted to promote equal access of girls to technical and vocational education.

8. The appropriate training and sensitization of guidance staff

and counsellors themselves to the gender issue is a critical factor in the effective promotion of girls and women's access to technical and vocational education. Likewise, parents (specially fathers) and employers must also be aware of the implication of gender balance and neutrality in education and employment.

9. Guidance and counselling literature should have feminine gender bias depicting reversal of gender roles. These materials have to be carefully and attractively designed to include a variety of information on new and male dominated areas.

10. Girls' self-esteem is the result of their overall experience. To enhance their self-esteem, they need to be exposed to effective teaching methods as well as types of activities, both traditionally masculine and feminine where they are likely to succeed. Success builds self-confidence. Experiences where cooperation and teamwork with the opposite sex are developed contributes also to the value of gender partnership.

11. The change of attitude of parents and society as a whole towards vocational education must be effected in a concerted effort through a variety of strategies like open houses, special promotional events; print and non-print media; open-fora, projects that are both gender responsive and socially responsible; and the involvement of the community in school affairs that have vocational and technological orientation.

Teaching / Learning Process

12. Teaching learning processes and materials have to be gender-neutral. However, a recognition of individual differences in styles of learning rather than being gender specific must be observed to make learning effective.

13. There should be a common standard for evaluation. To

ensure gender neutrality, men and women must be involved in the formulation of standards.

14. Course titles should be renamed where appropriate (e.g. dressmaking to textile technology, decoration to industrial design, etc.) to make the course more attractive. Learning resources must be so designed and packages to provide gender neutrality and a more technological orientation.

Affirmative Actions

15. Within the context of the socio-economic and educational culture, separate girls schools of technical and vocational education have existed in several developing countries as successful affirmative action measures. However, we should be cautious of the danger of sex segregation which may arise.

16. Residential facilities for girls should be established where appropriate with funding support from the public and/or private resources.

17. Special facilities and funding schemes for women who are returning to work from home/maternity and child care leave should be available and supported by the government. Child care services at the workplace should be provided. Flexible learning systems like distance learning, use of modules and short term training ensure skill upgrading and further education.

18. Special support schemes are likewise strongly suggested to assist the girls and women who are handicapped and deprived (minorities, refugees, rural, tribal, etc.) to develop their skills and capabilities to build their eroded self-esteem and, enable them to join the mainstream of social and economic activities. The quota system for girls and women is not generally favoured except for special cases like these girls and women who suffer from double

disadvantage of being handicapped and deprived. Funding schemes for this group should be increased to support their training and re-skilling.

19. Students should be involved in outreach project experiences as far as practicable. It will develop leadership skills and teamwork as boys and girls work together.

Linkage with the World of Work

20. Technical and vocational education should always be linked with the world of work. Entrepreneurial skills should be built into courses and special training for girls and women to assist them in putting up small scale business should be provided as needed.

21. Post-graduation technical and funding assistance should be provided to encourage entrepreneurial ventures specially for girls and women. Case studies on successful female entrepreneurs should be documented and made available to inspire girls and women to do the same.

Technical and Vocational Education as Continuing Education

22. To sustain economic and social confidence of girls and women, their capability for gainful employment must be continuously enhanced by providing special seminars, workshops and skills training. These measures will enable them to update their knowledge and align their competencies with the advancing requirements of the labour and employment sector.

23. Technical and vocational education institutions as well as employment agencies should provide flexible learning strategies which meet the training needs of women in a changing technological, economic and social environment. This includes women who are: returning to work after child care leave, working in part time

and casual jobs, working in unskilled and semi-skilled capacities in those male dominated occupations, and in isolated and rural areas.

24. Develop and adopt prior learning schemes which recognize and appropriately value women's skills that have been developed through work and life experiences.

Employment and Social Environment

25. Technical and vocational education institutions should form strategic alliances with industries and jointly commit to gender sensitization projects for their immediate and surrounding community. The net benefit of implementing equal opportunity practices at the workplace to the overall development of people and organizations should be stressed. Such cooperative activities will indirectly strengthen the image and resources of both institutions and industries. Eventually, employers will develop commitment to implement equal opportunity practices in the distribution of company incentives which consequently influence women workers' self-esteem.

26. Actions should be taken to direct the effect of the socialization process to reverse gender segregated attitudes and develop interest in technology and non-traditional careers of girls and women. This gender neutral and technological orientation should be cultivated in girls as early as possible at home and at pre-school level. Child care centres should be equipped with technology and the girls stimulated to approach technology in a creative and playful way. Girls and women's satisfactory and frequent exposure to science and technology-oriented materials and experiences will eventually develop their interest in the area.

27. Existing legal instruments and rational strategies should be reviewed and closely monitored for effective and consistent implementation to promote and ensure equal access of girls and women

to technical and vocational education.

28. Government officials; school heads, support or administrative staff; employers and personnel hiring officers in industries and employees must be sensitized to gender related laws and issues as well as to current and emerging development thrusts which affect women's status and activities at the employment place.

29. Recognizing that Research and Development (R&D) activities provide the fundamental base for development initiatives, vocational and technical institutions should monitor, update and ensure the availability of accurate gender related data. The same should be encouraged in employment organizations.

Statement for the Beijing Conference

The following statement was adopted by the participants during the meeting. It was submitted to the United Nations Fourth World Conference on Women (Beijing, China September 1995) through UNESCO.

The analysis of global issues in **technical and vocational education** has brought to the fore the poor status of women and their low participation in technical and vocational education, and as a consequence, low workforce participation as a general rule with some exceptions. The present status is also marked by prejudices discrimination and denial of equal right and privileges at the workplace in most of the countries.

It is well accepted that women can contribute equal value to economic and social development. It is also beyond question that technical and vocational education plays a vital role in achieving social and economic equality for women.

While the battle for the equality of opportunities in technical and vocational education and workforce participation requires a long term commitment, all our efforts must be made to eliminate prejudices and biases detrimental to holistic development of women. Women should not merely be adjusted to the existing structures and societal patterns, rather the structures and systems must change to properly accommodate women. The empowerment of women being the goal for all interventions which in turn will lead to equality of status in society. The strategies must be formulated for establishing and operating structures and systems as the cutting edge to fulfil the mission of ensuring dignity of women, participation and equality, not only of access but of chance to success. In this respect, it is felt that greater thrusts would be needed for girls and women of specially disadvantaged group of socially deprived, disabled, refugees, rural immigrants minorities, and indigenous women. Only the realization of the significance of synergy and complementarity between men and women will drive us along the desired course of action. The age-old male-centered values and the power structures must crumble to give way to balanced society of which the technical and vocational education system and the workplace are very important components.

The participants (from Argentina, Australia, Botswana, Brazil, China, Czech Republic, Germany, India, Japan, Kenya, Malaysia, Republic of Korea, Sweden and Turkey) of the *UNESCO International Expert Meeting on the Promotion of Equal Access of Girls and Women to Technical and Vocational Education* held at Seoul, Republic of Korea, 10-15 July, 1995, strongly demand promotional action by Member States to take appropriate measures to enhance the participation of girls and women in technical and vocational education in every possible way. There is a strong need now to move away from mere rhetoric to concrete and incisive action employing appropriate methodologies to bring about the desired change.

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Country Discussion Papers

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Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Botswana

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Introduction

The Social and Cultural Context

In the traditional Tswana Society there was and still is a clear division of duties amongst men and women. For example in the context of building traditional houses—a craft still practiced by the majority of the rural population—traditional brick moulding, brick laying, plastering, painting and decorating are tasks for women. Building roof rafters and thatching are jobs for men. In the area of traditional farming—also practiced by the majority of people in the rural areas—the women play a major role in crop production. Whilst men and women share the ploughing and planting, the women are left to manage and harvest the fields, while men look after livestock and hunt.

Although Tswana, indeed African, traditional societies maintained a clear division of labour between men and women in certain areas, the gender stereotyped attitudes towards many forms of modern sector employment and training do not coincide altogether with the traditional division of labour. Other factors have also come into play to influence such attitudes.

In the traditional society in Botswana women play a dominant role in looking after the children, managing the homestead and the ploughing fields. In Botswana, the introduction of modern sector employment, took people from the villages to towns and quite often outside the country, such as employment in the mines of South Africa. It was only natural that such employment should be for men as only men could leave home for long periods of time. It therefore followed that any training related to such employment was directed to men who were the existing and potential employees.

It should be observed that the pattern existing in Botswana, more or less applied in other African countries. Western culture and practice was not altogether far different from such a pattern. When therefore, after Independence, vocational training was introduced in the country it was based on this world-wide pattern and influenced equally by western gender roles and perceptions. Technical and vocational training was introduced for men. The Botswana College of Agriculture enrolled 100 students in 1970—all male—for two courses: agriculture and animal health. The National Centre for Vocational Training established in 1974 (now Botswana Polytechnic) for training of bricklayers, carpenters, electricians, welders, etc. was built to accommodate male trainees only. When unexpectedly some girls applied for the bricklaying and carpentry courses, the management was left with a dilemma as they only had toilet and hostel facilities for boys (Kann, 1989).

For women, often less formal craft oriented training was introduced, such as knitting, dress making, and home management courses and mainly by Non-Governmental Organizations such as extension work by the Botswana Brigades. This was a development typical for many African and other developing countries.

Ten years ago gender issues were rarely discussed in this country. The climate has now changed. The increased level of gender awareness amongst politicians, government officials, and men and women in general is a result of both internal and external influences. Many projects and activities linked to international organizations as well as bilateral support programmes include a gender component which the Government is expected to address. There has also been strong voices from local action groups, in particular a group of young female lawyers who are working for the removal of discrimination in the Laws of Botswana.

Access to Education and Training

While it appears that some early omissions were made with regard to female participation in technical and vocational education, this was not the case with regard to general education. Primary and Junior Secondary schools have for a long time now had a higher percentage of girls than boys. One reason for this is the population distribution— a higher percentage of women linked to the still high infant mortality rate. However, another reason more specific to Botswana is that parents need their young sons to look after their goats and cattle.

In Botswana today all educational institutions and all courses are open to both female and male students/trainees; there is no known discrimination in the admission procedures. However due to some cultural beliefs (such as work outside the home is for men) together with some imported western ideas on training (which has now resulted in lack of role models) there are courses at the secondary and post-secondary level taken mainly by boys/men and courses taken mainly by girls/women.

Access to Employment

Most women in Botswana are contributing to the provision for the family and the national economy—either as subsistence farmers in the rural areas or as paid employees in towns and larger villages. As in most countries, married women are expected to attend to most domestic duties even if they are working full-time and the same hours as their husbands. It is only very recently and among the younger generation that some husbands assist in taking children to school and to assist with shopping and other domestic chores. On the other hand, working women in Botswana have a great advantage in that they can employ domestic help or can rely on assistance from the extended family. This not only reduces the domestic burden, but also enables them to take on jobs which involve inconvenient working hours or travelling. There is, however, still an obstacle to female participation in development. This is the legal status of married women in Botswana. Women married in community of property cannot hold land in their own names or take a bank loan without their husbands' consent. This hinders their possibilities for business careers.

Relatively few discriminatory practices have been recorded with regard to employment of women, especially for lower-paid jobs, and that the ratio of women has increased in all economic activities between 1985 and 1994. With regard to promotion to supervisory or managerial positions, there has been a bias in favour of men. In Government it is only very recently that some women have risen to top-level positions. Some significant changes could however be expected over the next couple of years as there is now a steadily increasing number of women in middle management positions.

Vocational Education and Training

The national capacity for Vocational Education and Training (VET) is still very low. This form of training also suffers from a poor image both by those who are involved in it and with the public at large (Government of Botswana, 1992; Alexander & Molekomme, 1995). The overall female enrolment in technical and vocational training is about 30%. Statistical data show that girls still dominate in traditional female-oriented trades such as commercial/secretarial courses and dressmaking while boys dominate the more technical trades such as construction, metal and auto trades.

Factors Determining the Orientation of Girls and Women towards Technical and Vocational Education

Economical Factors

Botswana has experienced a very rapid economic growth linked with a rapid technological development. Human resource development has not kept pace with this economic development. The area of Science and Technology is the one with the highest shortfall of local human resources. At present the country recruits a large proportion of its scientific and technological personnel from outside Botswana at a very high cost. This applies especially to the professional and technical level. The situation at the Botswana Polytechnic is an example of the scale of this problem—over 70% of the lecturers are expatriates. During the late 80s' when Botswana went through an economic boom, also artisans in large numbers had to be recruited from neighbouring African states.

To successfully fill this human resource gap the country must train and use all its human resources, men and women. This is recognized by the Botswana Government and was a point stressed by the present Minister of Education, Dr Chiepe (herself a role model for the nation), when addressing students at the Science and Technology Roadshow in 1990—an event described in more detailed below (Government of Botswana & Commonwealth Secretariat, 1991).

Educational Factors

In primary and at all levels of secondary schools Mathematics and Science are core subjects taken by all students. In junior secondary schools there is some subject choice with regard to practical subjects. Home Economics is usually set against Design & Technology; most girls take Home Economics while most boys take Design & Technology. To what extent this is an option chosen by the students themselves or a decision by the school management is not fully established. According to a recent study commissioned by the Ministry of Education (Taole & Chakalisa, 1995), students who have done Design and Technology (i.e. the boys) are at an advantage when applying for places in vocational training institutions.

With regard to the performance in Science and Mathematics, Moseki (1992) reports that there is no significant difference in the performance for boys and girls at the primary level. Duncan (1989) found that boys perform better than girls in both Science and Mathematics at the junior secondary level. This in turn affects subject choice at the senior secondary level. At the senior secondary level fewer female than male students opt for the hard core sciences, i.e. Physics, Chemistry and Biology as three separate subjects as opposed to a softer option of Combined Science. This choice is linked to performance at the junior secondary level. The lower participation of girls in senior secondary school science classes, in turn, leads to a lower participation of girls in tertiary science and technology training programmes such as the engineering degree courses at the Botswana Polytechnic.

The Taole & Chakalisa study looked into the performance of girls in VET institutions and the National Craft Examinations. They found that girls perform as well as boys—in some cases better—in the final examination. Some lecturers indicated that girls may have initial problems with practical work but that they overcome this after some time in the institution. This could be linked to the fact that most boys have used tools in Secondary Schools Design and Technology, while most girls have not.

Sociological and Technological Factors

There are fewer female than male applicants for technical and vocational training institutions. This was confirmed by the Taole & Chakalisa study. The study also found that a higher percentage of the female applicants than male applicants were admitted.

The reason why there are few female applicants could be linked to the range of courses available. In a recent newspaper survey carried out by the Ministry of Education (Government of Botswana, 1995), young people were asked to fill in a form indicating their training requirements for vocational education and training (VET). A list of choices were provided for them to select from. They were also asked about their preferred length of training. There were some interesting observations from this survey:

- The highest interest does not come from new school leavers (17-20 years), but from the age group 20 to 25 years of age; possibly because they have realized the need for professional training or the need to learn a trade;
- Approximately 50% of the respondents were female, which would indicate that girls and young women are as interested as their male counterparts in some form of vocational education and training;
- Female respondents opted more for service oriented careers as opposed to the more technical careers preferred by male respondents;

- Female respondents opted for shorter courses (6-12 months) rather than the longer (2-4 year) courses chosen by male respondents. The reason for this was not established but considering the age-range of the respondents, it is very likely that many have children and other family commitments and would find it hard to be absent for a longer period.

This study indicates that female participation could be improve if more training opportunities linked to female choices were offered.

In another recent study commissioned by the Ministry of Education (Alexander & Molekomme, 1995) carried out amongst students at all levels of the education system, parents, lecturers and employers, the reasons for the low participation of female trainees in technical trades was identified as:

- Culture and upbringing. At the same time it was noted that parents seldom discourage girls from applying for technical training;

- Girls are not strong enough. This view was most strongly emphasized by primary school students (male and female) and less by those in upper secondary and least by those already participating in technical and vocational training;

- Lack of adequate career guidance. The study found that the career guidance provided in secondary school was inadequate and had little influence on students' career choice.

In the same study (Alexander & Molekomme, 1995) girls already engaged in some form of technical training were asked why they had chosen these careers. The study found that "well over half of the trainees in the brigades, VTCs or the Polytechnic chose their careers because they had an interest in technical work, felt that there are good job opportunities in the labour market, and were of the opinion that the country needs skilled human resources in the technical field" showing that they have some awareness and knowledge about the labour market. The study also noted that "27% of the students selected technical careers because they wanted to show the capabilities of women in the technical area, demonstrating that some women are willing to challenge conventional stereotyped gender roles and perceptions." Only 8% indicated that they chose it because it was the only training opportunity. The majority (71.7%) of the female trainees interviewed choose the trade for a positive reason and indicated that they are happy with their training choice.

Teenage pregnancy is a big social problem in Botswana. The Alexander & Molekomme study (1995) indicated that drop-outs due to pregnancy is common in the Brigades. They reported that one Brigade, which used to take up to 50% female trainees in some areas such as carpentry and building, experienced such problems with drop-outs due to pregnancy and lack of interest, that they decided to change their policy with regard to female trainees. The Brigades, which are non-governmental organizations, have been encouraged to develop a policy on family planning education and maternity leave for trainees. In the VTCs and the Botswana Polytechnic where the trainees tend to be older, trainees are allowed to continue training after the delivery of the child and the drop-out rate is relatively low.

Employment-related factors

The labour laws in Botswana are fair to women. Women are entitled to paid maternity leave.

The Alexander & Molekomme study also included a limited study amongst employers of women trained in the Vocational

Training Centres. The employers expressed the views that:

- The women perform as well as the men and are often more committed and responsible;
- The maternity leave issue is not a big problem with regard productivity since the number of women is still very small.

The latter statement indicates that this might become a problem if there was a significant increase in female workers.

A most interesting change occurred during a financial boom in the construction industry just a few years ago. Women who had previously been involved in drought relief programmes in their villages (building classrooms and schools) now applied and obtained jobs in the formal sector as unskilled labourers. In no time women became a common sight at construction sites and on road-works projects in and around the capital. The employers found that the women were not only able to do the work, but were also more reliable than men. In spite of this, some employers decided to give priority to men when the recession set in. (Alexander & Molekomme, 1995)

Present Measures to Promote the Equal Access of Girls and Women to Technical and Vocational Education

National Policies

A revised policy on education approved by Parliament in 1994 emphasizes equity as one of the basic principles and specifically brings out the need to address the under-representation of girls in science and technology related education and training fields. This policy also gives a new impetus to technical and vocational education in general. Pre-vocational preparation is to be included in the 10 year basic education programme. This will take the form of giving a vocational orientation to academic subjects, increasing the number of practical subjects, emphasizing foundation skills applicable to work situations such as problem solving, self-presentation, teamwork and computing, relating the curriculum to the world of work by offering both curricular and co-curricular activities which expose students to the processes and organization of production and the demands of working life, and through increased career guidance and counselling.

A National Training Policy and a National Training Act are to be developed which will cover all levels and type of vocational training in the country. These will be the documents that will include and address issues of gender with regard to access to technical and vocational training in more depth.

A Technical and Vocational Education Gender Reference Group was set up about 18 months ago to assist and advise the Ministry of Education in identifying research needs and in providing guidelines to the technical and vocational institutions on how to correct gender imbalances. The Committee started out by identifying the research needs, which then led to the commissioning of two gender studies—one focusing more on collecting data (Taole & Chakalisa, 1995) and one focusing more on attitudes (Alexander & Molekomme, 1995). These two studies have just been completed and the task of the Committee is now to prepare a plan of action. The two studies were carried out in cooperation with and with financial support from SIDA, who will also support some of the follow-up activities.

Innovative Practices

With regard to innovative practices I like to mention the Science and Technology Roadshow, an event organized by the

Ministry of Education in Botswana in cooperation with the Commonwealth Secretariat and UNESCO in 1990.

The objective was to show women and girls that they could succeed in many more areas of employment if they sought the appropriate qualifications and training in science and technology, and to make and impact on the attitudes and myths which prevent girls and women from taking advantage of today's opportunities in science and technology.

A major aspect of the Roadshow programme was to break the psychological barriers that students, especially girls, often have against science, mathematics and "design and technology." This was done by arranging practical activities to show them that there is nothing very difficult or impossible about science and technology and that, in fact, it can be quite fun. These included using workshop tools, exposure to computers, equipment assembly, scientific/technical games and puzzles. Each practical session lasted about two hours and obviously there wasn't enough time for the students to develop great skill. However, the aim of the activities was not to develop skills as such, but rather to stimulate the students and take away any fear they might have for such equipment or activities. The second aspect was to show them the way leading to careers in science and technology. The key strategy was to use role models: women who have opted for and succeeded in scientific or technical careers.

The production of a manual and a supporting video on how to organize such events and the publicity provided through the Commonwealth Secretariat has led to a number of spin-off activities in several Commonwealth Countries. At the local level the most significant outcome was the raising of gender awareness amongst all those involved in this activity, i.e. not only the students themselves, but also members of the organizing committee, the training institutions that were there offering training advice and career guidance, the employers who provided career guidance and role models, the panelists, the sponsors, and the resource people for various practical sessions.

A specific follow-up activity in Botswana is a joint Department of Water Affairs & Ministry of Education Project, also supported by SIDA, to increase the participation of girls in water sector careers, from pumpers to civil engineers. A set of career guidance material has been produced for use in junior secondary schools and in service activities are being implemented for both school teachers and staff of the Water Affairs Department in the use of this material. The idea is to develop similar projects for other technical careers in cooperation with the relevant Government Department or Organizations.

The Roadshow made use of role models in various ways: role model films were produced, visits were arranged to role models at their work places, role models were used as panelists in panel discussions, role models were used to provide career guidance at a Career Guidance Clinic. A little booklet was produced modelled on a Commonwealth Secretariat initiative (Commonwealth Secretariat, 1989) containing extracts from interviews with role models under headings such as "Do you need to be special to become a scientist?", "What skills are important?", "What makes the work interesting?", "Do you have to lift heavy things?", "Can women scientists find husbands?", and so on (Government of Botswana & Commonwealth Secretariat, 1990).

The role model films produced for the Roadshow, complemented by a few additional ones produced by the Faculty of Science at the University of Botswana, are now used in all senior secondary schools as resource material for careers lessons. The Alexander & Molekomme study confirmed that the use of role models is a powerful tool in changing attitudes. Since these role model films produced focused primarily on higher and professional careers, it is the intention of Ministry of Education to now produce role model films also for careers at the artisan and technician level.

Employment Opportunities

There are still very few specific efforts to increase employment opportunities for women. The Water Sector Careers Project referred to above is one such initiative. The Women's Affairs Unit, another Government Unit, has produced a little guide booklet to help women start their own business. They have also negotiated with a Government Financial Assistance Programme for incentives for women—a women is entitled to 10% more grant than a man for a similar business project. A Task Force was set up in 1993 to draft a National Policy on Women, this document is still in a draft form and under discussion. It is expected that some form of affirmative action measures will result from this exercise which should also affect employment.

Future Strategies and Plans

The attitudes of society and of girls themselves are largely the cause of the low female enrolment figures in technical and vocational training institutions. Lack of training opportunities in trades preferred by women, inadequate career guidance in schools, and lack of role models are additional factors.

The Department of Vocational Education and Training in the Ministry of Education intends to improve the image of technical and vocational education in general through improved and intensified publicity and career guidance efforts. As a major and important component of this programme, the issue women participation will be addressed. The Department intends to strengthen its own capacity for career guidance by training and providing materials for lecturers from the vocational training institutions so that they can go out to the secondary schools and assist the secondary school career teachers in providing career guidance for technical and vocational training. Some funds have already been identified for the production of both role model videos and career pamphlets. The Department also plans to employ a full-time officer to coordinate these activities. This project will start with a gender awareness seminar for the heads of the vocational training institutions to seek their cooperation and support.

The issue of affirmative action measures has been discussed but few decisions have been taken. In some institutions—selected junior secondary schools and selected brigades—girls are given preferential access to hostel accommodation. There is a proposal to apply this principle also to Government technical and vocational institutions such as the Vocational Training Centres. This is an area where we need input and ideas from other countries. The Government of Botswana is now receptive to ideas on how to address the under—representation of women in technical and vocational education; the time has come to devise concrete policies and strategies.

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Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Kenya

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Introduction

Education and training in Kenya have grown phenomenally since independence in 1963. As a result of the quest for more relevant education, the educational system was changed from 1985 to reflect changed circumstances in both the society and the world of work. The new system of education emphasized the integration of vocational education in the general school curriculum and the strengthening of the teaching of science and technology subjects to prepare young Kenyans for the 21st century.

As of today Kenya has a highly developed educational network comprising of pre-primary schools, primary schools, secondary schools, universities, colleges and vocational training institutions.

At home, girls and women still play a leading role in child care, cooking, farming and in other cases looking for food for their families. These roles are still stereotyped with increased adherence for them mainly in the rural areas where almost 80% of Kenya's population is found.

In school, the general trend depicts a higher percentage (95%) of enrolment in standard one but declines rather varies over the years. The decline is more pronounced for girls than for boys. From the age of 15 years and above, more girls drop out of school even more drastically (Kenya, 1989). While in school, at secondary and post secondary levels, girls have often opted for the art subjects and avoided natural sciences, mathematics and technical subjects. Those who opt for technical and vocational education do enrol in "traditionally designated" areas.

In various communities in Kenya women's participation in economic activities, mainly in the informal sector, far exceed that of men who tend to dominate businesses in the private formal sector (Kerre, 1993). Women's participation in wage employment is only 23% which is quite unrepresentative of their population in the labour force (Kenya, 1991). The trend is quite conspicuous in government employment where most senior civil servant positions are male dominated.

The Role of Girls and Women in Socio-Economic Development

Over the past two decades, the increased participation of girls and women in education, training and wage employment has brought tremendous improvement in the quality of life of the Kenyan society.

Educated and trained women have increased the productivity of the labour force. They have also been found to be better mothers. This has lead to decreased child mortality, controlled population growth and healthy families.

In a recent ILO study (Kerre, 1993) it was found that more women groups are turning away from traditional social activities to those activities that are of more economic benefit to members. It was also found that an increasing number of households were being headed by women, a departure from the traditionally male headed households.

Undoubtedly women will continue to assert themselves and to take on more responsibilities in the political, economic and socio-cultural contexts. This will make the provision of more and higher level education and training to this groups even more imperative.

Trends in Employment Opportunities

Employment opportunities for girls and women in all economic sectors are generally fewer and stereotyped into areas traditionally regarded as feminine. These are the arts related occupations, food preparation, clothing, primary school teaching etc. A disproportionate number of women are found in science and technology related careers and leadership positions. Examples taken from education and training and wage employment can illustrate this point. It can be observed that teaching staff in Primary Teacher Training College and Diploma Colleges are deployed disproportionately with only 3 principals and [illegible] deputy principals out of the the 20 principals in Primary Teacher Training Colleges while Diploma Colleges had no principal or deputy principals from female staff.

In wage employment only 324,929 women representing 23% of the total labour force are engaged. Out of them, 249,372 are engaged in community social and personal services (184,995) and agriculture and forestry (64,377). The least attractive sectors seem to be mining and quarrying, electricity and water and construction.

Enrolment in Technical and Vocational Education

The enrolment of students in the technical and vocational subjects overall has experienced a steady decline at all levels of learning.

At secondary school level, for example, enrolment by males has declined more over the years despite heavy representation in the trade areas. Female enrollments have increased numerically—overall but declined mainly in male dominated trade areas. The increase has been notable in agriculture while Home Science has similarly experienced a decline. The two subject areas account for an average of 99% of women's enrolment.

Enrolments in technical training institutes at the post secondary level depict more clearly the gender bias in the courses pursued by both sexes. Males dominate over 90% in mechanical engineering, building trades, metal work, electrical engineering, welding and automotive engineering. On the other hand, females dominate in garment making and tailoring, Foods and beverages, general agriculture and business education.

The scenario in the Faculty of Education at Kenyatta University equally depicts an overwhelming bias of women future teachers enrolling in the arts subjects while their enrolement in science subjects represented only 34% of the total enrollment in the area.

Factors Determining the Orientation of Girls and Women towards Technical and Vocational Education

Economic Factors

While the philosophy and objectives of the new curriculum are in line with the demands of the modern world of work and meeting individual learner needs, the implementation of the new curriculum has not been effectively carried out. This is mainly due to the lack of adequate and appropriate facilities e.g. workshops, home science rooms, laboratories and teaching/learning materials.

It can be observed that two years after launching the new system of education in primary schools, only 1414 workshops out of the 9,593 needed had been completed while only 698 home science rooms out of 9721 had been built. Similarly five years later in 1990 only 3,123 of the 13,132 workshops were completed while only 2,011 home science rooms out of the 12,960 required were completed. This inadequacy in facilitates was equally accompanied by a shortage in teaching/learning resources including tools and materials. The situation was similar at the secondary school level where severe shortages were conspicuous in workshops, laboratories for science subjects and home science rooms.

Since the Government had introduced a cost sharing strategy where parents were to contribute by building workshops, laboratories and home science rooms, it became obvious that communities differed in their levels of support, thus leading to inequitable distribution of resources.

The result was an abandonment of technical vocational subjects in most schools since the subjects were too expensive to run and were merely electives. As fewer schools offered technical subjects, the demand for teachers also declined giving an erroneous impression that technical and vocational teachers were over supplied. As for science subjects which were compulsory the demand for teachers has never been met.

In Africa, children often actively participate in everyday economic activities. These include household activities for girls and such activities as looking after cattle, ploughing etc. for boys. There activities have often interfered with the education of children most especially girls from communities that are not well endowed with resources. The girls are a higher risk group due to some deeply rooted traditions and culture.

Social-Cultural Factors

In Kenya, like the situation in most African societies, strong cultural and traditional practices often regard girls and women as being less scientifically and technologically enclined. Women's roles pertain to housekeeping, child rearing and food preparation. Technical careers that are practical are often the reserve for men because they are associated with masculine and outdoor activities for which women are less endowed.

Certain religious practices and taboos also discouraged women from working alongside men or competing for careers. One of the most popular biases inherited from post colonial regimes is the disregard or rather disrespect for manual labour. The colonizers were administrators and managers while the colonized were often manual labourers. After independence this dichotomy persisted throughout most of Africa until today when school leavers still aspire for white colour jobs in the private modern sector.

Despite these handicaps it is encouraging to note that an increased number of women are venturing into self employment in the informal sector and that there are some success stories about them.

Technological Factors

New changes in the world of work and technological innovations have placed new job requirements on the production of goods and services. These in turn have brought new technologies which ultimately provide a competitive edge to operators in modern business and industry. Subsequently there is a need for retooling the work force (i.e providing continuing education and training) to adapt to new changes.

Since women are less likely to take off extra time for continuing education or skill upgrading as this is often carried out outside the regular working hours, it is necessary to explore alternative strategies to enable women cope with the changes.

Employment Related Factors

Women are more subjected to gender biases in the labour market due to several structural changes. These include the decline in the employment in the formal sector and the rise in the informal sector where gender policies are not adequately observed. Despite their economic usefulness, most vocational jobs have a comparatively lower pay structure especially in the public employment sector. Even for jobs requiring higher level training, the private sector provides a better remuneration package. This has caused a flight of key manpower from educational and training institutions to industry, thus constraining training opportunities for those seeking admission into the technical and vocational institutions.

Education Related Factors

Various studies carried out in Kenya on gender related issues (Hughes and Mwiria, 1989; Makau 1994) reveal several factors influencing the choice of subjects or careers to be pursued by girls and women. However, gender insensitivity, inadequate levels of education and the lack of further educational opportunities seem to stand outmost.

Gender Insensitivity

In school, teachers contribute significantly to the girls' choice of subjects depending on their attitudes towards women and the roles they themselves play. The school is not a very good model because it maintain and carries on the established traditional norms. Girls are either directly or indirectly discouraged from majoring in scientific and technological fields. Text books and other learning resources perpetuate the traditional roles where women take more feminine roles and subjects. The schools and the rest of the education sector do not give due recognition to women who have excelled in non-traditional roles. Men still end up being the top policy makers at the secondary school, planners and administrators. At senior levels the gender balance is very much skewed to the advantage of men.

Poor Education Foundation

Most girls often find themselves pursuing non scientific and technological careers because of the lack of adequate preparation in mathematics and science in their earlier years of schooling. Enrolment in technical and vocational institution requires the candidates to have passed in mathematics and sciences. Traditionally, only few schools in the country were equiped with laboratories and other facilities to offer science and vocational subjects. The rest offered an arts based curriculum in which the majority of girls enroled. The education of parents and the rest of the community members about the important role girls and women can render to their society in the non traditional areas (Sciences and vocational education) would go a long way in changing attitudes right from home.

Lack of Further Education Opportunities

Another major factor affecting the choice of girls and women to pursue the technical and vocational areas is the lack of opportunities to further one's education and training to the highest level possible. Most technical and vocational subjects are usually terminal with very limited chances for pursuing graduate or advanced technological education. This career limitation may be one of the most important factors responsible for dwindling enrolements in technical and vocational institutions. (Kerre, 1990).

Measures Taken to Promote Equal Access of Girls and Women to Technical and Vocational Education

National Policy Framework in Education and Training

Kenya's guiding philosophy for education and training is outlined in sessional paper No. 8 of 1988 on Education and Training for the Next Decade and Beyond. The education system aims at removing social injustice and disparities between sexes, regimes, social and economic groups inter alia.

On technical and vocational education, the policy stresses the importance of developing and strengthening vocational education and training as an integral part of general eduction as well early preparation for the world of work (Kenya, 1988). The specific objectives of vocational and technical education stipulated in the national eduction policy are:

- To lay a foundation in vocational skills required for socio-economic development;
- To expose students to scientific and technological trends, skills and ideas;
- To develop vocational and entrepreneur skills as a basis for further training and employment;
- To develop appropriate vocational attitudes, initiative and creative thinking oriented to work;
- To inculcate skills which are applicable to various trades, vocations and profession;

- To develop an appreciation for the dignity of manual work.

The current National Development Plan 1994-96 also underscores the Government's commitment to expanding and improving technical and vocational eduction for all irrespective of sex or other factors.

In 1992 a country plan of action in the promotion of basic Education for All was launched after several National Workshops and the World Conference on Education for All held in Jomtien, Thailand in March, 1990. One of particular emphasis was the rescue of girls and women from inhibitive traditional and cultural practices to avert the alarming drop out rates and increased participation of girls and women in educational, political, economic and socio-cultural activities (Kenya, 1992(a)).

Some of the short-term strategies recommended included:

- A collection of gender disagregated data for full analysis of the eduction of girls and women;

- Training of many more high calibre women researchers to produce data, direct national planning and make the voice of women in the region be heard and clearly understood;

- As a temporary measure to close the gender gap, enhance funding, equipment and bursaries towards girls'/women's educational institutions;

- Enhancement of positive role models of women particularly in science, mathematics and technology, leadership positions and non-traditional areas.

Long term strategies included :

- Establishment of gender sensitive research and gender disagregated data on vocational education;
- Creation of a National Task Force on Gender Issues in education;
- Sensitization of families and communities on changing roles in society;
- Diversification of technical courses to take care of the interests and aptitude of female learners.

Innovative Practices

Over the past decade Kenya has learned that modern day educational systems must cope with needs of various learners, business and industry and communities. Kenyan communities pioneered the establishment of Institutes of Technology and Village polytechnics Now called Youth Polytechnics. As a result a network of technical and vocational institutions has been established with an articulated structure depicting technical and vocational training certificate levels as well as the movements from educational and training institutions to the world of work.

It was equally realized that the provision of knowledge and vocational skills alone was not sufficient to enable one develop an interest in self employment as an entrepreneur in the growing informal (jua kali) sector in Kenya. The government introduced a course in entrepreneurship eduction in all public technical and vocational training institutes to ensure that the learners get some basic entrepreneurship skills. At present there are two programmes for training entrepreneurship educators at the Higher Diploma level at a Technical Teacher Eduction College and a Masters degree programme at the University level.

National Policy Framework in Employment Creation

Besides educational and training policies, the enhancement of employment opportunities both in the formal and informal sectors is the Government's major concern. In this regard the Government of Kenya has instituted two major guiding policy instruments.

The first was sessional paper No. 1 of 1986 on Economic Management for Renewed Growth (Kenya 1986). It spelled out the Government policy framework and strategies that would invigorate economic growth through: fiscal and monetary management, rural-urban balance, agriculture and food security, and industry and trade.

While the policy recognizes and upholds the focus of vocational training that responds to the needs of the job market, it nevertheless stresses the point that has often been overlooked that: students in technical and vocational education at the secondary school level should also have the option of continuing directly into higher eduction upon graduation, either into the national polytechnics, vocational training institutes or universities. Only then will technical and vocational education and training become a more attractive alternative career choice for young Kenyans

A second policy instrument in employment creation is sessional paper No. 2 of 1992 on Small Enterprise and Jua Kali Development in Kenya (Kenya, 1992(b)). In this policy guidelines the Government recognizes the growing importance of the small scale and Jua Kali enterprise sector in the Nation's economy. It calls for the creation of an enabling environment for small sector enterprises (employing 1-50 employees) to survive—and the availability of a wider range of credit facilities and non-financial promotional programmes for the sector.

On gender specific issues, the national policy framework recognizes the constraints placed on women who constitute an equally large percentage of the labour force. Some of these special constraints which call for urgent remedial action include: lack of security for accessing loans, lack of entrepreneurial skills to successfully operate small enterprise, lack of time due to their multiple roles as women and the negative attitudes that traditional society has toward them with respect to working outside the home and in traditionally male dominated fields.

Remedial action has been called for more specifically in the following areas:

- To assist women entrepreneurs to organize themselves into viable economic groups which can provide security where it is needed to access financing;
- Provide education to the majority women who reside in rural areas and making bank credit facilities available to them;
- Provide women with entrepreneurship education and relevant skills in business management, marketing of their products and services, quality finishing and pricing;
- Introduce to women entrepreneurs a variety of available technological innovations for them to diversify their activities from the traditional low paying areas to modern and better paying areas.

The Government of Kenya has already embarked on collaborative ventures with international agencies, nongovernmental organization and industry to create more employment opportunities in both public and private sectors. Some of these ventures include: ILO/UNDP/UNIDO sponsored projects like the UNIDO'S women's textile project which provides skills and assists women in setting up their own enterprises and the ILO Kenya Youth Technical Training and Employment Creation (KYTEC) project which focuses on training in technical and managerial skills as well as providing a credit facility for small enterprise start ups.

In 1988, the Government of Kenya in joint ventureship with the federal Republic of Germany established the Informal Sector Programme for the sole purpose of providing credit to the micro and small business operations in Kenya. As at June 1994, the project had disbursed about K$4.8 million to some 3,100 businesses most of which were jua kali operations. Sales for the assisted enterprise grew by 35% per year and employment has subsequently grown by 50%, 26% of the 3,100 small scale enterprise are owned by women.

Over the past five years the government has collaborated with a leading private enterprise to sponsor Provincial Exhibitions at which jua kali entrepreneurs have had an occasion to promote their products and services. This has given wide prominence to the existence and potential growth of the informal sector in Kenya.

Major Constraints in Equal Access to Techinical and Vocational Education

Despite the fact that several policy initiatives and strategies have been identified and that some positive outcomes have been realized, there are still certain fundamental constraints which if not adequately addressed will continue to relegate technical and vocational education to a second chance opportunity and that girls and women will continue to be marginalized in the area.

Attitudinal Problems

Whilst technical and vocational education is on the lips of many a policy maker or educationist, it is still in practice regarded a second chance opportunity for those who cannot proceed with academic education. This is further strengthened by the low pay ascribed to vocationally trained graduates. There are relatively fewer women attracted to the field than men mainly for attitudinal reasons.

Technical and Vocational Education in the School Curriculum

Part of the problem that inhibits career choice in technical and vocational education is the lack of clearly conceptualized curriculum in the field of technical and vocational education. the existing curriculum lacks a clearly articulated philosophy and balanced curriculum where the educational and training aspects are visible and understood by both the learners, the teachers and parents.

Economic Decline

No amount of education and training will bring back to the full the dashed hopes for employment in an environment of economic decline. The introduction of cost-sharing strategies will only be supported by a vibrant economy where families can afford to contribute. Failure to do so has lead to higher drop out rates in both general and technical vocational education.

Population Pressure

Kenya's fast growing population in the 1980's exerted undue pressure on available resources, educational provisions and employment. Population planning strategies, however, have been successful in stemming the population trends even though the pressure is still felt today.

Lack of Further Education and Training Opportunities

The experiences of those who have persued technical and vocational careers attest to dead ends in their educational pursuit and careers. Technical and vocational education has not been accorded its rightful place in the university system. This has been the main discouragement for bright youth in the school system to opt for careers in the area.

Decline in Technical Manpower

The above constraints and poor attitudes towards technical and vocational education and practical work, increasing costs and the lack of career development opportunities have ultimately constrained the growth of a cadre of manpower with technical and managerial skills to produce the goods and services that society and industry require for growth.

Future Strategies and Plans

Whilst current policies and strategies address most issues and constraints found in technical and vocational education, their implementation is more than often ineffective. It is necessary to specify more in detail some specific activities that need to be taken. A close examination of the following five areas may be useful to start with.

Promotion of Positive Attitude toward Technical and Vocational Education

There is a need to cultivate a positive image of technical and vocational education through specific tangible activities including:

- Raising income rates for technical and vocational careers in the world of work. Lower pay rate are a major disincentive;
- Enhancing the social status of workers in technical and vocational trades and vocational occupations through collective bargaining, appointment to position of responsibility in the community;
- Making provision for technical and vocational education up to the university level thus creating a competitive career pattern;
- Providing for continuing education and training as a life long pursuit.

Equity and Access to Technical and Vocational Education

- Strengthen girls persuence of maths and science to be eligible for Technical and Vocational Education careers;
- Provide scholarships to deserving cases to correct the imbalance in gender access;
- Use role models e.g. the promotion of successful women into responsible position in tve careers.

Closer Link to Industry

In order for technical and vocational education to be current and relevant it must be carried out within close range of the activities carried out in industry in the world of work.

- Curriculum should be reviewed with constant feedback and input from industry and business;

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- Vocational training centres should be modernized to replicate industry;

- Students should be involved in more work study programmes and projects that take them to industry to gain new experiences Teaching Staff should also be involved in industrial attachments regularly to update their skills and knowledge.

Conclusion

The role of women in the life of a nation is critical and recognized in Kenya. Government policy framework are geared towards supporting women's involvement in school and economic sectors. Whilst policy formulation and planning for strategies to implement such policy have been relatively easy to accomplish, the implementation of such policies has not been as easy. It has been found that long established traditions are hard to break and that current political, social and economic changes have added to the problem at hand.

It is therefore necessary to invoke a collective response by Government, industry, business, communities, women leaders and professionals of all cadres and gender to operationalize the strategies and options advanced in this paper. It will be an effort well spend in the long run.

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Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Australia

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Introduction

The last decade has been one of significant change for women and girls in Australia. There have been major increases in the rate of women's education and labor force participation, and women are entering marriage and commencing childbearing at a later age. The last decade has also produced legislative and policy initiatives designed to bring about equality for women in society, particularly in education and employment.

According to 1991 census data Australia has a population of 17.3 million people: 8.7 million females and 8.6 million males. Twelve percent of Australian women (1.04 million) were born in a non-English speaking country, an increase of 41% from 1981. Census data also shows that 1.2% of women identify as being Aboriginal (71,000 women) or Torres Strait Islander (9,300 women).

It is widely known that Australia has "one of the most gender segregated workforces in the industrialized world" (House of Representatives Standing Committee on Legal and Constitutional Affairs, 1992). Fifty five percent of women in the paid workforce are congregated in only two occupational categories (clerks and salespeople and personal services). With regard to education the OECD indicators identify Australia as having the largest index of gender dissimilarity in education (OECD, 1993).

The last decade saw changes in family composition with the number of one-parent families with a female parent rising by 30% while the number with a male parent decreasing slightly. The increase was due mainly to the incidence of marriage breakdown rather than to women having children without forming a partnership.

Over the last 20-30 years there have been changes in fertility patterns with women choosing to begin childbearing at a later age and having fewer children. Thus the proportion of births to mothers under 25 years of age has declined noticeably, from 47% in 1971 to 26% in 1991 while the proportion of births to mothers aged 30-34 years almost double in the same period.

A study on time use "Juggling Time—How Australian Families Use Time," published by the Office of the Status of Women, shows that despite the increasing use of domestic technology there has been little change to the amount of time women spend in unpaid work.

Women have always been significantly under-represented in Australian political life and in the higher echelons of the public sector. In 1993 there were 19 women in the Senate and 10 in the House of Representatives. Australia-wide, of the 842 elected State and Territory representatives in lower and upper houses, 112 of them are women representing 13.3% of the total. The average level of participation of women in local government is 19.57% (House of Representatives Standing Committee on Legal and Constitutional Affairs, 1992). Women have increased their representation within the higher levels of the Commonwealth public sector, the Senior

Executive Service, from 4.4% in 1984 to 15% in 1994 (Employment and Skills Formations Council, 1994).

Education

Women's employment options are largely shaped by their educational choices. In the last decade there has been an increase in the participation of women in post-compulsory secondary education. In 1992, 45% of women aged 15-19 years and 44% of men on the same age group were attending school. This represented a 7% increase for both men and women since 1986. That these apparent retention rates are higher for females than males reflects the fact that more males then females go into trade apprenticeships, and do not necessarily complete all the post-compulsory

Table 1 ***Year 12 Enrollments in Tertiary Accredited Subjects[1]: Proportion who were Female***

(Unit: %)

Subject Choice	1986	1990	% point change
Home Science	93.0	90.7	-2.3
Creative and performing Arts	72.3	70.3	-2.0
Languages	71.4	68.1	-3.3
Biological and other sciences	61.1	60.5	-0.6
Humanities and social sciences	56.5	57.0	0.5
Economics and business	49.1	52.4	3.3
Mathematics	46.3	48.1	1.8
Physical education	46.6	43.8	-2.6
Computer studies	30.2	40.4	10.2
Physical sciences	33.3	36.7	3.4
Agriculture	34.3	35.5	1.2
Technical studies	5.0	7.3	2.3
Total[2]	52	52.7	0.7

Note: 1) all subjects which are publicly examined and/or tertiary accredited.
2) Includes other subjects not elsewhere specified.

Source: AECCC: National Report on Schooling in Australia.

schooling.

There are still considerable differences between young men and young women in terms of subject choice, the educational pathways being chosen and the type and level of qualifications being gained. These differences become apparent during secondary school and continue through to tertiary education and into employment.

Vocational Education and Training

A key component of economic equality and independence relates to the employment opportunities of men and women. The subject choice of girls at school has tended to limit post-school options, both in terms of employment and further education. In higher education women now comprise the majority of undergraduate students but this high participation still exhibits gender segmentation in subject choice.

Apprenticeships have predominated as the means of entry to a range of occupations: metal, electrical, building, furniture, printing, vehicle, ship building, food and hairdressing. Access to training depends upon employment in the area. Prevocational courses have provided basic levels of training prior to employment, but because of entrenched attitudes, both on the part of employers, and on the part of young women, it has been difficult to effect substantial change in the gender balance within these occupations.

The characteristics of women's vocational training are that women tend to gain training outside the public vocational training system e.g. in private business colleges, where they pay fees and which they undertake at the pre-employment stage i.e. without receiving any wage.

The Australian Traineeship system has attempted to provide structured entry level training in areas previously not covered by formal training. However this system accounts for only a small proportion of young people, accounting for only 1 in 20 places in part-time and full-time training for 15-19 year old.

Enrolment data in vocational education is currently only available for the technical and further education system (TAFE). The rates of women's participation increased marginally in 1993 for the first time since 1989. However, there has still been a significant reduction with the overall rate of women's participation now being 45.9% compared to 47.1% in 1989. At the same time, the participation rate of females aged 15-24 has increased (albeit from a low base) but this has been more than offset by a significant fall in participation for females aged 25- 64 (ANTA draft data, 1995).

Female participation under 20 years of age has been historically low, due to the predominance of trade training at this level.

Training reform in Australia has been allied to micro-economic reform and the need to improve Australia's international competitiveness through the development of a highly skilled workforce. These reforms have been grouped under the heading of the "National Training Reform Agenda" and cover: a national training system, competency based training, competency standards, recognition of training, curriculum, delivery and assessment, entry level training, training market, funding training, access and equity.

Within the policy approach to training reform, the disadvantage faced by women has been recognized from the perspective of the inefficiency of existing training arrangements, and employment structures.

However, the establishment of a national vocational education and training system encompassing TAFE and non-TAFE providers provides a framework for addressing issues of access and participation of women. State Training Authorities produce annual State Training Profiles, which constitute the planning and accountability tools. The State Training Profiles contain a requirement to "address access and equity needs of individuals from target groups, just as they are required to address the needs of industries and enterprises" (ANTA, 1995). An access and equity planning model has been developed to assist this process.

Employment

The last decade has been notable for the continued increase in the rate of women's participation in the paid workforce. In 1986, 48.3% of women were in the paid workforce. This has risen to 52.4% in January 1992 and constitutes 42% of employed persons. The pattern of workforce participation has not changed markedly over time with women still concentrated in two occupational categories: 31% of all employed women being employed as clerks and 24% as salespersons and personal service workers.

Much of the growth in women's employment has been in part-time work. Forty three percent of employed women work part-time and this comprises 75% of all part-time workers. Many part-time workers are employed on a casual basis which means that they do not have access to certain work related benefits and have less job security, but are paid an additional loading. In August 1992, 31% of female employees were employed on a casual basis (ABS, 1993). As a result of significant employment growth in part time work in denial, sales and service occupations, there has been a continuing focus on women's traditional areas of employment.

"Half way to Equal," the report of the "Inquiry into Equal Opportunity and Equal Status for Women in Australia" (1992), by the House of Representatives Standing Committee on Legal and Constitutional Affairs, found that the Australian workforce still exhibits a high degree of vertical sex segregation. This means that even where men and women work in the same occupation males occupy the most important positions and women the less senior and less financially rewarding positions. The Report also found that in many female dominated areas of work, there were relatively flat hierarchies with few career opportunities. While women are less likely than men to be self-employed a recent trend shows that women are now establishing small businesses at a much faster rate than men.

Factors Determining the Orientation of Girls and Women towards Technical and Vocational Education

Poole, Langen-Fox and Ciavarella have recently undertaken a major study drawing together relevant work on the various factors that influence the nature of female decision making in education and work (Poole (ed.), 1992). They identify the key decision young women take as being with regard to career or homemaker orientation. Factors identified as influencing this are:

- Sex-role socialization;
- Subject choice at secondary school;
- Structural influences such as school type, teacher attitude and curriculum design.

Sex-role Socialization

Sex-role stereotyping includes the influence of family on female career aspirations, attitudes to school, and life roles. Studies have found that parental expectations have considerable influence, with fathers playing a considerable role where daughters choose non-traditional occupations. They report that young women who pursue non-traditional careers have tended to have more traditionally masculine play patterns in their childhood and had less concerns about fitting feminine stereotypes.

Studies also identify the importance role models play during crucial decision-making time, especially for young women pursuing non-traditional fields. "Significant others" that also influence career orientation include family friends and girlfriends.

Poole, Langen-Fox and Ciavarella (1992) found one study which argued that the lower participation rates of girls from blue-collar backgrounds is related to the inability of parents to see the financial benefits of directing their daughters to pursue further education. Daughters are still seen as potential wives and mothers.

Subject Choice

Subject choice of young women at the secondary level is a significant factor limiting post-school options, and continues to reflect a leaning towards social occupations. This can be due to socialization but can also reflect a fear of being difference from peers (Poole, 1992).

Structural Influences

Teacher expectations, in terms of role orientation and in academic competence can be important in limiting or extending young women's horizons. However, this occurs earlier in school life then expected, with little change occurring in the later years of secondary school.

The report "Half Way to Equal" highlights the need to provide a school environment that is inclusive of girls, identifying the need for all teachers to be able to handle gender issues in the classroom (House of Representatives Standing Committee on Legal and Constitutional Affairs, 1992).

Employment Related Factors

A major barrier to expanding young women's vocational opportunities is the composition and structure of the current training system. This effectively limits young, and older women's choices in the workforce and channels them into areas where women are already over-represented.

The issues of gender segmentation of the Australian workforce has been recognized by government as a source of inefficiency, loss of talent and resulting in inequality for women.

Present Measures to Promote the Equal Access of Girls and Women to Technical and Vocational Education

National Strategies, Policies and Legislation

The last decade has seen a range of legislation and policies which aim to achieve equal opportunity for women and girls. They include:

- Commonwealth Sex Discrimination Act (1984);
- The Affirmative Action (Equal Employment Opportunity for Women) Act (1986);
- National Policy for the Education of Girls in Australian Schools launched (1987);
- The Australian Women's Employment Strategy (1988);
- The National Plan of Action for Women and TAFE (1991);
- The Review of the Women's Entry Level Training (1991);
- The National Action Plan for the Education of Girls 1993-97.

Two policy initiatives of particular relevance are the National Action Plan for the Education of Girls 1993-97 and the National

Plan of Action for Women and TAFE.

The National Plan of Action for the Education of Girls recognizes the achievements that have been made, and establishes eight priorities for the period 1993-97 which will assist in meeting the four objectives of the National Policy. The four objectives are:

- Raising awareness of the educational needs of girls;
- Equal access to participation in appropriate curriculum;
- Supportive school environment;
- Equitable resource allocation.

The eight priorities are:

- Examining the construction of gender;
- Eliminating sex-based harassment;
- Improving the educational outcomes of girls who benefit least from schooling;
- Addressing the needs of girls at risk;
- Reforming the curriculum;
- Improving teaching practice;
- Broadening work education;
- Changing school organization and management practice.

System-level indicators have been established and reporting will be through annual National Reports on Schooling in Australia, and through a series of annual Girls in Schools reports.

Launched in 1991, the National Plan of Action for Women and TAFE was developed with the agreement of the Commonwealth and all State and Territory Governments. It recognizes that Australia can no longer afford to under-utilize the skills and talents of women and signifies a comprehensive approach to improving women's participation in vocational education and training. This is part of a broader government effort to create a more highly skilled workforce and improve Australia's international competitiveness.

The National Plan has identifies six main objectives which set priorities for action. These are to:

- Improve paths of entry for all women into accredited TAFE courses;
- Improve women's successful participation in vocational training;
- Improve the physical and learning environment of TAFE for women;
- Improve support services for women;
- Ensure that women benefit equally from training for industry and award restructuring;
- Increase the participation of women in TAFE decision making.

The National Plan was agreed to nationally but was to be implemented by means of state and territory action plans, which were to be published and launched within six months of the National Plan launch. Each state and territory TAFE system was responsible for developing and implementing an action plan to achieve its share of the nationally agreed objectives and targets, and was to include the Plan in performance agreements between the TAFE system and its colleges. In addition, it was linked to the resource allocation process between the Commonwealth and State and Territory Governments (DEET, 1991).

During the development of the National Plan it was recognized that there was a need for a national research and project base to provide a range of basic information and materials to support the Plan's implementation. DEET committed funds for the development of national projects to support the plan, and commitments were also made by the Australian Committee of TAFE, the TAFE

National Staff Development Committee and the TAFE National Centre for Research and Development (now the National Centre for Vocational Education Research). Some of these projects are outlined in the next section on innovative strategies.

Innovative Practices

As part of the implementation of the National Plan of Action for Women and TAFE, funds were provided for national projects which would aid the achievement of national goals. These national projects provided research, reports and staff development packages which were innovative. Some examples are:

Recognizing Prior Learning: A Practical Guide

Women often have difficulty acknowledging that they have skills which are both valuable and transferable. The need for information especially tailored to women applying for recognition of their prior learning was in the report "RPL—Implications for Women."

This resulted in the production of a magazine aimed at women of non-English-speaking background which assisted them to understand the PRL process and to identify key skills they have developed through life and work, rather than through formal study.

Gender Inclusive Teaching

Gender Agenda is a staff development programme designed to develop informed professional judgement in gender issues in the learning environment of TAFE and training.

The programme is based on the view that gender is socially constructed and that students' success should not be constrained by the stereotypical attitudes of teachers. The programme develops concrete skills in implementing curriculum, managing classrooms, assessing and adapting teaching resources, and working with colleagues and industry in ways which are gender inclusive. Like other areas of professional practice, underpinning skills and knowledge need to be developed in order to achieve competency in gender inclusive teaching. This professional development package has been widely implemented within the TAFE system and has been adapted for the broader vocational education sector.

Efforts to Provide Employment Opportunities (including self employment)

The Australian Government has outlined its policies on employment in "Working Nation: The White Paper on Employment Growth." The Government has established a goal of reducing unemployment to 5% by the year 2000. Strategies outlined in the papers cover:

- Reforms to labor market assistance for unemployed in the form of a job compact;
- Training and education reforms;
- A restructured social security system;
- A regional strategy;
- Micro-economic reforms.

Women will be particularly affected by the move to individual income support to each partner of an unemployed couple, making married women now eligible for labor market assistance (Keating, 1994).

The small business sector has been source of almost all net private sector employment growth since early 1991. Women are already establishing their own businesses, in particular in self employment, at a faster rate than men. Between 1983-84 and

1991-92 the number of males in self-employment increased by 21% while the numbers of females increased by 38% (ESFC, 1994).

A recent study by the Employment and Skills Formation Council "Making it Work: Women and Small Business" (1994) has recommended on strategies to facilitate women in becoming mall business owners. These recommendations cover:

- Access to information on which to make informed choice about a career in small business;
- Access to information on support services available;
- Development of effective models of networking;
- Strategies for addressing the training needs of women in small business (ESFC, 1994).

Difficulties and Constraints in Implementation of Equal Opportunity Policies

The major difficulties and constraints relate to attempting to implement policy initiatives for access and equity at a time of major change to the technical and vocational education system in Australia. The extent and nature of change does not promote stable conditions for consistent implementation of national access and equity approaches.

In addition, data collection systems have not been sophisticated enough to provide a range of specific information on women's participation in technical and vocational education. This will be addressed between 1995 and 1997.

Future Strategies and Plans

Changes to the vocational education and training system now require an access and equity approach for women to cover the whole of the vocational education and training sector. There is currently a proposal to develop a "National Strategy for Women in Vocational Education and Training." This will build upon the achievements of the National Plan of Action for Women in TAFE.

A revised national standard on data collection will facilitate increased reporting on participation and outcomes for women. This will aid accountability for the achievement of outcomes for women.

In secondary education the implementation of the Australian Vocational Training System should provide opportunities for young women to gain vocational credentials while still at school. 1995 will be the first full year of operation of this scheme and data is as yet unavailable.

In the short term it is difficult to assess the impact of training reforms on women's technical and vocational education opportunities and outcomes. While new structures have been developed to facilitate training reform and implementation, some of the old structures and attitudes remain. Of particular importance will be the capacity of the new national training system to achieve:

- The extension of accredited training to areas previously not covered (and where women work);
- Significant gains for women from a reformed entry level training system Benefits for, or at least no negative conse-

quences for, women from increased industry control and direction of technical and vocational education;

- Successful career education and vocational education in secondary education which establishes more varied vocational pathways for young women.

As Paul Keating, the Prime Minister of Australia, stated at the ANTA National Conference *Towards A Skilled Australia:* "The issue of vocational education and training transcends all other loyalties. . . . it is in the first place, a national issue of equity" (Keating, 1995).

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Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in China

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Introduction

The improvement of women's educational level is an important criterion for measuring social development and civilization. It is also an essence to promote women's social participation and dig up the potential of their own. In China, women account for 50% of the total population and enjoy the equal right as men for employment. Today women in employment account for 49% of all the employees in the country. In 1992, employed females account for 72.33% of all the women of above 15 years old. They are employed in the wide range of occupations. Women have become a vital force in China's socio-economic development.

Vocational Education for Girls and Women in China

Over the past four decades since the founding of the People's Republic of China, laws of various types, have clearly defined women's rights in political life, economy, education, science and culture. A series of policies have been formulated and measures have been taken, which warrant girls and women's access to education including technical and vocational education.

In China, there are usually three ways for girls and women to receive vocational education: vocational subjects in general education, formal vocational education, and short-term vocational training.

Vocational Subjects in General Education

At secondary level, two types of school are coexisted: general academic school and technical/vocational school. In 1994, 44.3% of students enrolled in the general academic secondary schools are girls.

Educational reform in the early 1980's has resulted in the separation of vocational high school from general academic secondary school. Meanwhile more attention has been given to offering vocational subjects in general education.

It was set by the Ministry of Education that vocational elements should be integrated into the nine year compulsory education curriculum. Therefore 1.5 hour of labour course per week has been required in all primary and secondary schools. Recent statistics indicated that in over 20 provinces, municipalities and autonomous regions, more than 80% of primary schools and 70% secondary schools have labour courses. In addition, labour courses for girls which are different from those for boys are also offered in many schools.

The curriculum of general education has also been reformed by supplementing fundamental academic knowledge with voca-

Table 1 ***Percentage of girls in general secondary schools***

Years	1980	1985	1992	1994
Percentage	39.6	40.2	43.1	44.3

tional subjects and courses based on the local reality. In this way, girl students in general secondary schools gain access to vocational education.

Formal School Vocational Education

Pre-service vocational education in China mainly takes the form of school education at upper-secondary level (grade 10-12), composed of specialized technical school, vocational high school and skill-workers training school. These schools are to train junior and mid-level technicians, administrators, technical and skilled workers. With the increase of enrollment of girls, especially after the availability of courses favorable to women's employment in many schools, more and more girls have access to formal vocational education.

Meanwhile, 1,679 girls' vocational high schools have been established all over China. These schools enroll female students only and have courses available that are both physically and psychologically suitable to girls. Some of these schools in Dalian, Dandong, Jilin, and Qingdao are very well run and enjoy high popularity.

Post-secondary technical and vocational education are also offered in China. Today the country has 83 vocational universities, in which many courses are enjoyed by women. The number of women entering vocational universities is increasing.

Since 1985 a number of girls' vocational universities have been established in Fuzhou, Xian, and Dalian. It opened up another channel for girls and women to receive post-secondary vocational education. These institutions mainly train senior-level technical personnel with practical capabilities. This type of school setting has been greatly supported and well received by the community.

Short-Term Vocational Training

It primarily refers to vocational training on practical skills of various forms, at different levels, and in different scales. This kind of training is usually jointly conducted by the departments of administration, department of agriculture, women's federation, scientific association and some other social cooperations at local level. The training on practical skills are usually conducted on short-term basis by the training agencies at county, township and village levels. In this way, women can quickly get a command of one or several productive skills adaptable to local condition.

Over the past four decades, the number and percentage of girls in schools of various types have all gained a year-by-year increase. This can even more obviously be seen in vocational schools as indicated by the following Table:

Some interesting trends may observed from the statistics:

1. The percentage of girls in technical and vocational schools is higher than that in general academic ones. In 1994, there were totally 3,987 specialized technical schools with 3.2 million students. Of them 48.8% were girls. There were 10,209 vocational secondary schools with 4.05 million students where girls accounted for 47.8%. The country's 82,358 general academic secondary schools enrolled

Table 2 ***The enrollment of girls in secondary schools of various types***

(number in: 10,000)

	1980		1985		1994	
	Number	%	Number	%	Number	%
Academic schools	2180.1	36.6	1893.1	40.2	2207.0	44.3
Specialized technical schools	39.2	31.5	60.7	38.6	156.3	48.8
Vocational secondary schools	14.8	32.6	95.4	41.6	193.8	47.8

49.8 million students, 22 million of them were girls, accounting for 44.3%.

2. The number and percentage of girls in secondary vocational schools have most rapidly increased. It is not difficult to see that the number and percentage of girls in specialized technical schools and vocational secondary schools have gained a fastest, year-by-year increase comparing with that in general academic schools.

From 1981 to 1994, 9.2 million female students graduated from secondary vocational schools of various types. They have become a vital component of the work force and made great contribution to the society by giving full play to their knowledge and talents.

According to the recent statistics, there are more than 90 million women in rural areas who have participated in non-formal skill training and, most of them have commanded over two types of practical skills. Over 1.5 million women have attended agricultural correspondence universities, agricultural broadcasting schools, and rural technical schools.

Measures and Experience

Over the past 40 years, vocational education for girls and women in China has made obvious achievements, primarily due to the favorable social environment. The governments at various levels attaches great importance to the improvement of women's political, economic and social status. At the same time, vocational education system itself has made giant strides, which has created a favorable preconditions for the easy access of girls and women to technical and vocational education.

Laws and regulations to guarantee women's rights for vocational education

The Constitution and the Law of the Compulsory Education clearly define the equal right of men and women for education. Based on the principle of equality of men and women, the Chinese State Education Commission (formerly the Ministry of Education) issued special documents to ensure that both boys and girls are treated equally concerning the school enrollment. Regulations issued by the Ministry of Labor also says that efforts must be made to employ women for the jobs suitable to them.

Local governments also formulated similar policies of their own. Beijing municipal government, for instance, sets a rule that both men and women must be equally employed and only women are employed to the jobs suitable to them. Changzou municipal government decided that girl applicants' records will be put into file 20% higher than the enrollment plan so as to enable girls to have more access to technical and vocational education.

Great attention by the government at different levels and cooperation of different departments are the insurance to girls and women's participation in vocational education

In China, both central and local governments attach great importance to vocational education and training for women. With the joint efforts made by the departments of education, labor, personnel and planning, girls and women enjoy equal rights as men in all aspects of vocational education, including school distribution, curriculum designing, enrollment and employment after graduation.

Development of a technical and vocational education system that pays special attention to the needs of girls and women

To encourage girls and women to technical and vocational education, many schools have curriculum specially designed for girls and women. The curriculum first of all address to the requirement of social and economic development for women, and secondly, to the physical and psychological characteristics of women. More courses suitable to women's characteristics are being offered such as secretary, filing, accounting, fashion, nursing, childhood education, tourism, cosmetology, textile, hotel service and administration and public relations. Focus has been given to digging up women's potential. Teaching activities are conducted based on the requirement for women's multi-roles in society and much attention is paid to improve their quality in employment and versatile talents. Vocational education with special characteristics is becoming more and more attractive to girls and women.

Future Orientations

China has a large population and rich labour resources. The supply of labour has exceeded the demand. In urban areas, the unemployment rate in 1992 was 2.3% and women accounted for 56.7% of the unemployed population. It is still more difficult for female to get employed due to the limit of their physical characteristics, household chores and child-care duties. Lack of vocational skills is certainly one of the factors making difficult for them to find a job.

To address this problem, reform has to be conducted in the following aspects:

Women can work in almost all the occupations existed. Of the

12 trades in national economy, there are nine (industry, agriculture, construction, transportation/communication, business, public health, education, governmental agencies and social cooperations) which have respectively employed more than 1 million women. Therefore, in technical and vocational education, it is not acceptable to keep them away from making choice of professions.

Technical and vocational education should adapt to the characteristics of girls and women and give full play to their potential. The physical and psychological difference between men and women results in advantages and disadvantages in their occupations. Stress should be put, however, on policies for the equal participation of men and women. It should be forbidden to set proportion of men and women in jobs and schools. Vocational guidance and consultation in this respect are essential.

China has a large territory with uneven development in different regions, which results in the obvious difference in vocational education offered to girls and women. Therefore, the objective of vocational education for women should be worked out based on the local reality, and should be addressed to the local needs.

Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in India

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Introduction

India accounts for 16 percent of the world population and 2.4 percent of the land mass being the second most populous country. The population totaled 844 million according to the 1991 census. The sex ratio is 927 females per 1000 males. Fifteen major states account for 96% of the country's population. In 1991 the population density was 267 persons per square km. varying from 10 persons in the state of Arunachal to 6319 in Delhi National Capital Region. 150 million children are below 6 years of age and approximately 200 million children are between 6-14 years of age. They are all constitutionally entitled to free and compulsory education of India.

The education system comprises 800,000 formal education institutions; over 500,000 non-formal education centre's for out of school children and adult learners and 339,000 Early Childhood Care and Education (ECCE) centres.

The literacy rate of the population has grown to 52% for all persons aged seven and above in 1991; 64% for males and 39% for females and female literacy increased at a faster pace. Among the

362 million literates, there are only 132 million women (36%), whereas they form 61% of the 332 million illiterates.

The current enrolment at the primary level (classes I-V) is to the tune of 102 million of whom 42% are girls. At the upper primary level (Classes VI-VIII) girls form 38% of the 35 million children who are enrolled. The additional population to be enrolled by 1997 at the elementary stage (Classes I-VIII) is 56.1 million, out of whom 67% are girls. It is significant to note that girls form 82% of the additional 20.2 million children to be enrolled in Classes I-V. Likewise, girls account for 59% of the 35.9 million additional children to be enrolled at the upper primary level for attending the goal of Universal Elementary Education (UEE) which is a constitutional promise.

The status of women in Indian society has to be viewed in the context of the historical conditions and current social, economic, political and cultural forces in the country.

In the ancient vedic period women held equal status with men. It is postulated that society being predominantly nomadic, it did not produce enough food to allow any section of society to be completely withdrawn from the production process.

Ironically women's degradation started with the great social reforms that took place around 300 B.C. Women were considered completely inferior to the male, having no social significance and personality. Socially she was denied any right, oppressed, and labelled a basically lacking the ethical fibre. The patriarchal system, the customs of polygamy, the purdah system the property structure, early marriage, self-immolation of widows (sati) or a state of permanent widowhood, all these contributed to the smothering of the free development of women. This was the situation up to the late nineteenth or early twentieth century. Since then several reformists of India including Mahatma Gandhi took up the cudgels against female oppression.

The situation improved slowly and women woke up to their position in society. In 1926, the All India Women's Conference (AIWC) was established. The AIWC plays a major role even today in improving the lot of women in India.

Mahatma Gandhi the father of the nation, made a clarion call for the emancipation of women. Gandhiji realized that the vast "Women Power" could be utilized for self rule as well as village rehabilitation. At that time purdah system, the economic dependence, non-existence of widow remarriage, child marriage, the custom of polygamy and numerous other customs hampered the women to develop their personality and raise their status in the society. The Indian women had to perform domestic functions under social constraints which had made her life cramped, narrow and fruitless so far as the modern world and its new developments were concerned. Gandhiji rightly visualized that there were various tasks in the independence struggle which could be performed only by women of India in an efficient manner.

After independence the nation committed herself to secure "to all its citizens; justice, social, economic and political; liberty of thought, expression, belief, faith and worship, equality of status and opportunity; and to promote among them all fraternity assuring the dignity of the individual and the unity of the Nation." The establishment of an egalitarian society became one of the national pledges after independence. Programmes related to women's development were launched and legislative measures were initiated, while significant advances were made in this direction, women in India, constituting about half its population, are still recognized as deprived even after more than four decades of independence.

One of the important indicator of women's status is "Female Literacy." It is considered to be the most sensitive index of social

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development. Female literacy is negatively related with fidelity rates, population growth rate, infant & child mortality rates; and shows a positive association with female age at marriage, life expectancy, participation in modern sectors of the economy and above all enrollments.

In India female literacy rate grew from 0.60% in 1901 to 7.85% in 1952 to 24.88% in 1981. The 1991 census has recorded the total literacy rate of 51.11%, 63.86% for males and 39.42% for females.

Women at Home

In everyday life and in various crisis, situations women displays strength and patience in carrying out their responsibilities. Through their hard work and dedication to house—keeping, child-rearing and assisting in agriculture and industry, women contribute much to national, economic and social development. They are responsible for the food the family consumes and for the care of their children. They take care of food production, food processing, food preparation and serving, cleaning household, carrying water, gathering fuel, and washing dishes and clothes. Management of resources,—human and material—sending children to school, meeting the needs of adolescents, improving the environment and planning for their daughter's future are also among their heavy responsibilities. They exert great influence on the mental and social development of children.

The mental resources of women are almost inexhaustible. They learn through the ears and transmit orally much of the religious rites, ethical and moral codes, literature and music. In addition, they have played a singular role in the development and fostering of social, cultural and spiritual values, social relations and cooperation.

Urban middle class women have gained individually and as a social group. Some have managed to break into top levels of professional and administrative hierarchies in a male dominated society. Many have made access into middle and low level positions.

Rural girls/women are in a double bind of being born female in a patriarchal society and to be living in the under served rural environment, yet, there is a definite improvement in the situation over the past.

The Panchayati Raj (local self rule) provides significant participation of women for decision making in immediate environment. Sex based division of labour, segregation and subjugation provided a broad framework governing the life within the traditional joint family.

The impact of global and national level macro changes have of late been subject of considerable interest. Women's working outside their homes is not a new phenomenon for women in rural India who have always been working for a living in the fields along with their men. In urban India also women have been working for a long time in factories, as menial servants and as construction labour. But taking up out of home employment by the educated middle and upper class women is the current phenomenon.

The emerging trend of women's taking up employment is liable to affect their entire personality and their martial and family relationship. Now they have two roles to perform, one of a housewife and the other of a wage earner. Both these roles make demands on their time and energy and they are quite torn between the conflicting pulls of the dual role. Women make substantial contribution to the family income through home based activities. But this is treated as supplemental as it is unrecognized. In the organized sector women are entering new avenues; they are undergoing training programmes to improve their skills or acquire new skills. Their numbers as technicians in various fields is on the increase, as also in managerial and professional fields. Recognition of women as an economic entity and as a provided for the family may help to eliminate the many ills that they are subjected to.

Socially one of the most fundamental and remarkable changes brought about since India's independence has been the comparative emancipation of women kind—its emergence from the exclusive seclusion of the home into the activities of the world outside. The impact is marked upon the middle class urban educated population, these changes have affected women much more than men.

Women in School

Education is the most important instrument for human resource development. Efforts have been made as a planned development process to enrol and retain more girls in schools to continue their education as long as possible, and to provide non-formal education for women. A constitutional directive provides for free and compulsory education up to the age of 14 years. It is one of the components of the Minimum Needs Programme and is given overriding priority.

There is no discrimination in admission to educational institutions, but certain socio-economic factors often militate to keep certain segments of the population socially and educationally backward.

Though facilities for education are equally available for both boys and girls, yet there is a significantly lower level of utilization of facilities by girls and women. The drop out rates of girls at the primary as well as the upper primary stage are higher than those for boys, with girls accounting for 46 percent of the enrolment at the primary stage and 38 percent at the upper primary stage.

In terms of literacy rate women are three decades behind men.

The factors which do not permit the closing of the existing gap between the education of men and women are many.

It may be noted that the system is caught in a state of ambivalence, aiming at creating an equal society while at the same time not disturbing the class, caste and gender relationships. Issues in women's education are not just issues of educational sector, but they extend to issue of environment, employment, production processes etc. The entire gamut of social and economic policy has a bearing on women's education. In the present scenario, the urban girls are competing with their male counterparts and going in for higher education as well as professional courses. A growing number of women is qualifying as engineers, architects and accountants. No profession or service is barred to women and more and more women are taking advantage of these opportunities.

Women in the Community

Women have primarily been associated with the home making and men with the world of work. This compartmentalization led to a gender differentiation of such an order that even in contemporary situation men and women are treated at different footings, particularly in developing countries. India is no exception.

In a situation characterized by sex discrimination women have continued to occupy the place subordinate to men. Yet, women today are different from women of yesterday in all spheres of life. Their marching ahead is in response to changing realities of time. They are coming out of their seclusion and are sharing greater responsibilities in national reconstruction.

Women and Employment

The pressure on women to be economically independent is now pulling more and more women towards employment. A growing awareness about opportunities contributes to this phenomenon. Traditionally the Indian women have been involved in activities related to occupations like agriculture, forestry, construction labour, cottage industry etc., but personnel contribution has remained invisible. In many socio-economic groups, belonging to the lower strata of society, women have been working for survival and their incomes have gone into the procurement of the family's basic needs like food and clothing.

In the Indian economy, women are concentrated in occupations which are usually at the lowest rung of the ladder. In most occupations they are engaged in the more arduous and less skilled areas of work. In terms of access to skills, women continue to be employed in monotonous, low skilled and low wage sectors.

Absence or lack of enforcement of social and labour legislation hampers women's access to basic employment benefits. Women are denied rights such as minimum hours and minimum wages, and access to maternity benefits, maternal health care, day care and legal aid. There are number of areas in which women receive no social security benefits. These factors together contribute to the insecurity of women and reinforce their inferior status as workers.

In the organized sector, the employment potential for women is likely to grow very slowly. On the other hand, there is a considerable scope for employment in the agriculture and service sectors. Diversification in agriculture and in the other major sectors of rural employment offers enormous potential for employment. Horticulture, commercial vegetable growing, food processing, fisheries and poultry, agro-industry offer ample opportunities to rural women. Unemployed young women could be trained in extension work for imparting the necessary skills in these activities. Besides, a variety of new occupations could be created for women workers in the areas of agro-based industry weaving, textile printing, ready-made garments, production of stationery and preparation of indigenous herbal medicines and packaging etc.

Extension of the service sector in the rural areas is a need and reality offering scope for local women to be absorbed with the minimum training being provided. Nurseries, creches and anganwadis also offer employment opportunities for a large number of women. The areas of simple health care like immunization, diagnostic screening (testing of blood etc.) and other health functions could be opened to intermediary levels without affecting the overall standards, these facilities are not currently available to poor families particularly in the rural areas. Middle level workers could be trained for employment in the provision of these services.

There is an immediate need to diversify the prevailing occupational base so as to promote skilled employment on a wider scale. Currently, training is imparted in traditional occupations like carpentry, welding smithing, tailoring, book binding etc. which is also male oriented. It is now necessary to provide training for women in such non-traditional fields as well. An area based identification of potential occupational clusters would have to be undertaken systematically in different regions of the country in order to determine the nature and size of opportunities that could be made available.

Perspectives for the Role of Girls and Women in Socio-Economic Development

The Politico-legal Framework

The Indian Constitution in preamble promises, "to secure to all its citizens justice, social, economic and political; liberty of thought, expression, belief, faith and worship; equality of status and of opportunity; and to promote among them all; fraternity, assuring the dignity of the individual and the unity of the nation." To realize these goals, the Constitution guarantees certain fundamental rights and freedom, e.g. freedom of speech, protection of life and personal liberty, etc. Along with these certain other prohibiting discrimination or denial of equal protection of law, are also guaranteed. As equal citizens of India, women benefit from these rights equally with men. However, since the Constitution recognized the unequal social position of women, a special clause (Article 15 (3)) empowers the state to make special provisions for women and children even in violation of the obligation not to discriminate among citizens. This power has been used to enact special laws for the protection of women workers in factories, mines and plantations, and to provide maternity relief for women workers in the organized sector.

Equality of opportunities in public employment and office under the State is guaranteed by Article 16. The universal principle of adult franchise, seeks to ensure women's full participation in the shaping and sharing of power.

The Directive Principles of State Policy, embodying the major goals of a welfare state, also contain certain specific items affecting women. Article 39 holds out the promise of an equal right to "adequate means of livelihood," "equal pay for equal work," "protection of health and strength of workers—men, women and children—from abuse and entry into avocations unsuited to their age and strength." Just and human conditions of work and the provision of maternity relief are directed by Article 42.

The Equal Remuneration Act was passed in 1976. This Act provides for equal pay for men and women doing the same or similar work. It also forbids discrimination on the basis of sex at the time of recruitment and after.

The Maternity Benefit Act of 1961, provides more maternity leave to women working in factories, mines and plantation, including government establishments. The Employees State Insurance Act, 1948 also provides for maternity leave for low paid workers, but neither in the unorganized nor in the agricultural sectors are there any such legal rights for women.

The Contract Labour (Regulation and Abolition) Act, 1970 and the Inter-state Migrant Workmen (Regulation) of Employment and Conditions of Service Act, 1979 have made provision for creches to care for the children of women working as contract labourers. This provision needs to be extended to other industries and establishments and made available in all establishments employing more than 30 persons.

Legislation is important but the implementing machinery at all levels has to be sensitized and made responsive to women's needs. Awareness and knowledge of women's rights to equality has to be created not only among women but in the society at large. Women must themselves be involved in a much bigger way in the judicial and the law enforcement process whether as judicial officers, lawyers or police. The constitutional vision of gender justice can be realized only by a set of multiple strategies which include more affirmative action.

Women, like other disadvantaged sections in Indian society have not fully realized the potential power that laws and legal processes hold for them in matters of development. They are ignorant of their own rights or are afraid or unable to enforce them due to expensive, complicated and long drawn out proceedings. Thus they do not have easy access to justice.

Policies Advocating Women's Concerns

The Government of India has been creating an enabling policy environment in which women's concerns can be reflected, articulated and redressed. As part of this effort, many policy instruments have been brought forth, over the years, leading to Action Plans and programmes in several spheres. Some of the important policy guiding documents include the National Plan of Action for Women (NPA) adopted in 1976 became a guiding document for the development of women till 1988 when a National Perspective Plan for Women was formulated. The National Perspective Plan for Women (NPP) (1988-2000) drafted by a Core—Group of Exports is more or less a long term policy document advocating a holistic approach for the development of women. Shram—Shakti the Report of the National Commission on Self-employed Women and Women in informal Sector (1988) examines the entire gamut of issues facing women in the unorganized sector and makes a number of recommendations for the betterment of women in the informal sector relating to employment, occupational hazards, legislative protection, training and skill development, entrepreneurship development, marketing and credit etc. In addition to these women-specific policies, there are many more women-related policies like National Policy on Education (NPE) (1986), National Health Policy (NHP) (1983), National Commission for Women's Act (NCW) (1990), which have been influencing the welfare and development of women and children in the country.

Impact of Plans, Policies and Programmes in Raising the Status of Women

The impact of various developmental plans, policies and programmes over a period of four developmental decades (1951-91) have brought about perceptible improvement in the socio-economic status of women in the country. Important achievements in the major thrust areas are listed below:

In the field of Health, significant gains in respect of women's health status have been achieved. Expectancy of life for females at birth which was 31.16 years in 1951 was estimated to rise to 59.1

years in 1986-91. The infant mortality rate declined from 129 in 1978 to 79 in 1992. Similarly, the sex differential in infant mortality rate has now been almost bridged. However, the 0-4 age specific mortality rate, even though it has significantly declined from 53.0 in 1970 to 33.3 in 1988, continues to show higher female mortality. Although, maternal mortality rate in rural India still continues to be uncomfortably high at 324 per 1,00,000 live births it showed a declining trend from 468 in 1980 to 324 in 1989. However, the sex ratio has been declining from 972 in 1901 to 927 per 1000 males in 1991. This is a matter of great concern and various studies are being undertaken to identify the complex set of factors responsible for this.

Similarly, in the field of Education, a number of steps were taken up for promoting women's education and equality in line with the National Policy of Education, 1986. The main strategy for education was a distinct orientation in favour of women's equality and empowerment. Although, the female literacy has come up to 39.4 percent in 1991 from 0.7 in 1901, the level is unacceptably low. The enrolment rate of girls in primary schools has also improved from 66.2 in 1981 to 86.0 in 1991. However, the dropout rates amongst girls at primary level at 50.3 remains always high compared to that of boys. However, the higher decidual growth rate of female literacy (66 percent) as compared to male literacy (43 percent) provides some consolation.

Employment Trends

In the field of Employment and Training, the Directorate General of Employment and Training has established six Regional Vocational Training Institutes (RVTTIs) and one National Vocational Training Institute (NVTI) for women. These Institutes provide training facilities in the basic, advanced and instructional level skills. Further, about 230 ITIs/ Wings were set up for women. By the end of the Seventh Plan, it was envisaged that placement cells would be set up in the regional and national vocational institutes. Provisions were also made exclusively for training and rehabilitation of handicapped women. Besides these, other developmental sectors also conduct employment oriented training. As a result of these efforts, employment of women in the organized sector has gone up from 193 millions in 1971 to 357.2 millions during 1980. Employment in public sector increased steeply from 86.2 million in 1971 to 221.3 millions during 1989. In private sector, female employment has gone up from 106.8 millions in 1971 to 135.9 millions in 1986, the number of women job seekers in employment exchanges rose from 112.5 millions in 1975 to 546.0 millions in 1988. As per 1991 census, The female work participation has gone up from 19 percent in 1981 to 22.6 percent in 1991 in respect of main workers.

Factors Determining the Orientation of Girls and Women towards Technical and Vocational Education

Realizing that the active participation of women in the socio-economic life is imperative for bringing about improvement in their status and for attainment of equality, the National Policy on Education (1986) has accorded high priority to increasing the access of girls to vocational education. If one looks at the existing situation regarding the girls' participation in vocational courses at the higher secondary stage, it appears to be extremely disquieting. As a matter of fact over the last one decade the scheme of Vocationalization of Education in general has shown a rather slow progress. It continues to be riddled by various problems which have resulted in non-achievement of targets in terms of both quantity and quality. The issue demands greater attention so far as girls' participation in vocational courses is concerned. Not only is their participation low in terms of number as compared to boys, but also the type of courses offered to or opted for by them are the traditionally accepted "feminine" courses. Most of these courses do not cater to the modern technological demands and thus fail to generate employability for girls. This leads them to very few opportunities for their socio-economic independence, thus further accentuating inequality of sexes and ultimately adversely affecting the development of the nation.

The Major Problems and Issues Regarding Vocationalization of Education for Girls/Women

The percentage of girls participating in vocational courses is much lower than that of the boys at the higher secondary (+2) stage. One of the significant observations in this context is that the percentage of girls crossing grade X is also comparatively lower. As a matter of fact the enrolment of girls is much lower than that of boys at each level of education. At the primary and middle stages of education girls comprise 35% and 31% respectively of the total enrolment. The magnitude of the problem of girls education can be assessed from the fact that they constitute 70% of total unenrolled children in the age group of 6-14 years. The problem of universalization of education today is in fact mainly the problem of education of girls. Rural statistics are even more alarming than what they have been stated above. There is not much of an improvement in the situation at the high and higher secondary school levels as girls constitute only 35% and 32%, respectively, of the total enrolment at these stages. The latter includes enrolment in general as well as vocational streams. Considering that only 4-5% of the total enrolment at the higher secondary stage go to the vocational stream, of which a nominal percentage is of girls. Thus the girl population in the vocational stream at the higher secondary (+2) stage is extremely small. This observation is based on the information gathered during discussions in different forums on vocational education. However, at this stage it is not possible to substantiate the above with recent and relevant statistics because there is a paucity of data with regard to the State wise break-up of figures for boys and girls in vocational education.

Researches have revealed that there are various sociological, cultural, educational and psychological factors responsible for the problems of non-enrolment and high dropout rate among girls. Some of these factors are as follows:

- Inadequate number of separate schools for girls;
- Shortage of women teachers;
- Lack of motivation and general prejudice against women's education among parents;
- Early marriage of girls;
- No easy accessibility to school facilities;
- Dull school environment and curriculum not related to life;
- Educational deficiency of parents which leads to no follow-up support for instruction received at school;
- Involvement of girls in care of siblings and household work.

All the above stated reasons hold good for low enrolment and poor participation of girls in vocational courses also along with certain additional factors which are stated in the subsequent points.

The programme of Vocationalization of Education in general has not been able to gain as much momentum as desired and has not succeeded in attracting sufficient number of boys and girls, particularly the latter. Though conceptually the scheme of Vocationalization of Education is sound, it has not been implemented effectively because of various constraints such as improper infrastructure, lack of trained teachers and suitable instructional materials, inadequate curriculum design, faulty management system, lack of community support and participation, rigidity in recruitment rules and many other related factors. These problems, however, are common to vocationalization for boys as well as girls but need to be looked into specifically in the context of girls.

One of the major factors contributing towards the low participation of girls in vocational education is the parental apathy to any kind of job oriented education for girls. There is no doubt that, in the post-independence period, the number of women's participation in the socio-economic and political life has been on the rise, but even now parental conservatism resists their access to education in general and particularly to work-oriented education. The idea of their daughters going into the world of work is not acceptable to many parents who firmly believe that the role of the girls is confined to home making and child rearing. To their minds, vocational education is suitable only for boys, the ultimate "bread winners."

The problem of girls' participation in vocational courses is not only of inequity in number but also in the types of vocational courses made available to or opted for by the girls. Despite policies at the national level on equality of women and equalization of educational opportunities for them, gender bias continues to dominate educational planning and many states even now adopt a restrictive policy in providing vocational courses to girls. The disparity between girls and boys is further intensified when only soft options of courses such as tailoring, dress making, cooking or meal preparation, secretarial assistance etc. are made available to girls. It is a common practice that only those courses which have been categorized under the vocational areas of Home Science at the national level are introduced in girls' institutions, where as forward looking courses from the vocational areas of technology, commerce, agriculture are offered only in boys' institutions. Even in co-educational schools, this type of sex stereo-typing exists. Such discriminatory attitude and the "home science syndrome" cuts off all options for girls and prevents them from acquiring skills which are more in demand due to the modern technological and scientific development.

However, it has also been observed that in quite a few states all types of courses are made open to girls in purely girls' institutions a but the number of girls opting for non-traditional courses are very few. Here again, the parental and societal bias regarding certain vocations being suitable only for men is the probable cause for this type of situation.

There is an absence of adequate educational and vocational guidance service in the girls' institutions. As a result of this, neither the awareness regarding availability and utility of all types of vocational courses can be created among girls and their guardians nor their apprehensions particularly with regard to non-traditional courses in this regard can be eliminated.

It has been found that the quality of teaching of science and mathematics is poor in case of girls resulting from lack of investment in physical facility and inadequacy of teachers. Though weaknesses in these subjects have been found in both boys and girls but these are more acute in the latter. The lack of adequate foundation in science and mathematics further circumscribes the girls' choice at the plus two stage particularly where vocational courses related to technology, paramedical and even some of the home science based courses, are concerned.

It has been observed that girls who have overcome various constraints and gone into vocational courses of radio repair, clock and watch repair etc. do not find wage employment easily because of the bias of the employers who offer jobs on the basis of their rigid notions of gender appropriateness.

To sum up, it is reiterated that there is not only a high rate of female illiteracy in the country, there also exists technological illiteracy among the literate female population due to sex stereotyping in education. Even where restrictions are not imposed by the schools while offering vocational courses, girls prefer to opt for those courses which are traditionally considered suitable for them. Thus it is essential that along with a stringently practiced policy of non-discrimination, careful attention should be paid to the issue of preparing and attracting more girls towards non-traditional vocational courses. Besides, the scheme of vocationalization of education in general has to be relieved of its overriding weaknesses at the implementation level, in order to make it acceptable to the girls, their guardians and the community.

National Strategies, Policies and Legislation Affecting the Social Attitudes of Students, Parents and Others toward Technical and Vocational Education

Gender inequities throughout the world are among the most all-pervasive though deceptively subtle forms of inequality. India realizes that real development cannot take roots if it bypasses women, who not only represent half of humanity, but represent the very kernel around which social change must take shape. The past few years have been amongst the most eventful in recent history. Besides the unprecedented changes in the political, diplomatic, economic and ideological spheres, certain quiet but perhaps more far reaching ones have also taken roots. From growth to growth with equity, from bureaucratic delivery of services to people's participation, from economic development to human development and from asset and services endowment to empowerment, the paradigms of development have indeed come a long way. Secured by successive commitments at our highest political levels, this change constitutes the most enduring guarantee for the safeguarding of women's rights in India.

Recommended Strategies for Vocational Education

On the basis of the analysis of the problems related to vocationalization of education for girls at the plus two stage, various strategies for enhancing their access and participation and for successful implementation of vocational course for girls are recommended. The major aspects under which recommendations are sated are as follows:

Type of Courses and Their Selection

A non-restrictive policy should be adopted while offering vocational courses to girls and their choice should not be limited to Home Science based courses alone. Employability should be the main criteria while introducing any course and traditional notions of suitability, on the basis of gender, for any job should be abandoned by the administrators. Besides home science based courses, those from all other major vocational areas namely technology, commerce, paramedical, and agriculture should be open for girls.

Besides provision of courses for increased employment of women outside their homes, in industries and other establishments, more courses leading to self-employment should also be started for girls. Such courses will be particularly useful for women in rural backward areas where opportunities of wage employment are limited. Many girls, after they are married, are not in a position to devote themselves to a full time vocation outside their homes, but they may wish to be involved in productive work at home to attain total/partial economic independence and help in supplementation of the family income. This kind of part-time self-employment will have a positive bearing on the self confidence and social standing of the women. The job opportunities of any vocational course for girls therefore should be viewed from three angles, namely: i) Wage employment, ii) Self-employment in the form of a small business with substantial capital investment, iii) Home based part-time self-employment.

Content Modification and Revision

The content of the vocational courses for girls will have to be developed and organized in such a manner that it compensates for all those weaknesses in girl education which inhibit their entry into non-traditional vocational courses/vocations.

Since preparing for self employment is one of the objectives of the vocational education, the girl students must be equipped with necessary entrepreneurial skills like establishment and maintenance of their own units, account keeping and other aspects of management. Thus, special entrepreneurship development programmes should be an integral part of the curriculum of all the vocational courses for women.

Institutions and Infrastructural Facilities

It should be ensured that non-traditional courses are not introduced only in co-educational institutes but also in girls institutions.

It may not be feasible and financially viable to introduce a vocational course in an institution which is located at a place where only a small number of girls are willing to join it. To make sure that there is a substantial enrolment in a particular course and also to overcome the problem of inaccessibility, in terms of distance, a few model institutions for girls should be established in selected districts. The existence of such institutes will also satisfy those parents who do not wish to send their daughters to co-educational institutions. Each of these institutes should be well equipped with regard to infrastructure, staff and other facilities. Location of such an institution in an area which is in the vicinity of a variety of industries, training institutes, etc. will be in added advantage. These institutions should play the role of trend setters by introducing only non-traditional courses.

Educational and Vocational Guidance and Counselling Service

The centre must take sufficient financial provision for establishing and developing vocational guidance and counselling cells in the vocational schools/institutions. The following functions should be performed in the context of vocationalization for girls:

- It should procure and provide necessary information about job opportunities, their scope in terms of vertical and lateral mobility and other relevant details;
- It should help in creating awareness about and development of favourable attitudes towards non-traditional careers among the girls and their guardians;
- It should establish linkages with employment agencies and help the students in their placement for on-the-job training as well as for absorption in suitable positions after the completion of the course.

Incentives

Appropriate measures should be taken to encourage enrolment of girls in vocational courses especially the non-traditional course by offering the following incentives:

To attract more girls to vocational courses, incentives may include free tuition, scholarships, stipend or allowance for purchase of books, provision of workshop costumes or uniforms, free conveyance if the institution is not easily accessible.

In co-educational institutes, certain number of seats should be reserved for girls in the non-traditional courses. This will put an end to the trend of admitting only boys to non-traditional courses.

Necessary instructions to this effect should be issued by the State Governments.

Support Services for Employment of Women

Provision of equal opportunities in vocational courses may not serve the purpose unless support services for increased wage and self employment for the female products of such courses is not created.

The expansion of vocational education at the plus two stage has to be accompanied by necessary measure for the recognition of the vocational courses and revision of the recruitment rules for the employment of their products. The state level nodal agencies responsible for the Vocationalization of Education should approach the concerned government departments/ministries and other agencies for necessary modifications and make provisions to accommodate the graduates of different vocational courses at the plus two stage.

Creating Awareness and Public Acceptance

In order to encourage increased participation of girls in the vocational education programme, creation of public awareness and acceptance of Vocationalization of Education will be necessary. Considering the prevailing traditional and cultural values, the enrolment of girls in non-traditional vocational courses may not increase in spite of all efforts of making wide range of options available to them. Proper climate will have to be created in the community to motivate more girls to come forward and join such courses. The following strategies are recommended towards this end:

The parent teacher associations and vocational guidance services of the school should take a lead in motivating girls, their guardians and the community for encouraging the participation of the girls in vocational courses particularly the non-traditional courses. They should be made aware of the potential special needs and changing role of girls and the importance of equalization of opportunities in vocational education and employment.

While the emphasis should be on aforestated awareness campaigns which are localized at the level of vocational institution, the facilities of mass media including Radio and Television should be utilized for creating awareness about and popularization of vocational courses for girls among the community at large.

Strategies during the 1990's

During the 1990's, the strategy will be to ensure that the benefits of development from different sectors do not bypass women and special programmes with greater gender sensitivity are implemented to complement the general development programmes. The flow of benefits to women in the three core sectors of education, health and employment are being kept under close vigil and surveillance as these contribute a great deal towards main-streaming women into national development. Employment and income generation activities including self-employment with training for upgradation of skills is a major intervention for raising the status of women.

The strategy, however, recognizes that government responses to the problems of women are invariably sectoral and therefore fragmented. The needs of women, however, are holistic. Therefore, this strategy focuses on an integrated approach for providing various basic services to women. The third component of this strategy is that it realizes that to be effective, development process much not regard women as mere passive beneficiaries but must seek their active participation in the process. Such participation requires women to be mobilized into groups at the grass-root level through which they can orchestrate coordination of government programmes and articulate their hopes and aspirations.

Although the problems facing poor women in India are daunting, the combined efforts of the government and NGOs have created an ambience of concern for women and a heightened sense of gender perspectives. Whether it is education and literacy, health and environment, sanitation, training and income generation, science and technology, media and advertising or even legislation and judicial reforms, women's concerns are fast getting flag marked. These issues have not only entered into the rhetoric of planning, but are today reshaping conventional paradigms of development and growth. Today, these have become also part of the global development debate. The challenge before us today is to translate this concern at the level of Government and voluntary organizations into a wider societal awareness which in turn can shape praxis at all levels whether the household or society, as a whole.

Role of National Machinery

The Women's Bureau in the Department of Women and Child Development being the National machinery for the advancement of women in India is made responsible for main-streaming women into national development by raising their over-all status on par with that of men. The Bureau in its nodal capacity, formulates policies and programmes, enact/amends legislation affecting women and coordinates the efforts of both governmental and non-governmental organizations working to improve the lot of women in the country. The programmes of the Bureau include—employment and income generation, welfare and support services and gender sensitization and awareness generation programmes. These programmes play the role of being both supplementary and complementary to the other general development programmes in the sectors of health, education, labour and employment, rural and urban development etc.

Special Thrust on Employment and Training for Women

In line with the Eighth Plan Strategy, the nodal Department of Women and Child Development has reset its priorities to accord special emphasis on employment and income generation activities for women. The ultimate objective in all these efforts is to make women economically independent and self-reliant. Some of the important programmes initiated by the Department in this direction are listed below:

Support to Training and Employment Projects (STEP): The programme of STEP, launched in 1987, aims to upgrade the skills of poor and asset-less women, mobilize, concertize and provide employment on a sustainable basis to women in the traditional sectors such as—agriculture, dairying, fisheries, sericulture etc. In addition to training and employment support the three special features which this programme includes are gender sensitization, women in development (WID), inputs and provision of support services. Since the inception of the programme till March 1994, it has provided employment opportunities for 1,03,791 women.

Training—Cum—Employment Production Centres (NORAD): The second major programme which extends financial assistance to public sector undertakings/corporations/autonomous bodies/voluntary organizations to train women in non-training trades and provide employment on a sustainable basis.

Socio-Economic Programme (SEP): The third major programme of employment and training for women is the socio-economic programme (SEP) implemented by the Central Social Welfare Board (CSWB). SEP provides work and wage to needy women such as destitute, widows, deserted, economically backward and handicapped. Since the inception of the programme in

1958 till today, it could provide wage and work to 15.4 millions needy women with a total expenditure of Rs. 541.8 millions. SEP takes care of both literates/semi-literates/illiterate women. Trades promoted under this programme include both traditional and agro-based industries besides non-traditional trades.

Condensed Courses of Education and Vocational Training for Adult Women (CCE & VT): The scheme started in 1958 and recast in 1975 by the Central Social Welfare Board aims to provide new vistas of employment through continuing education and vocational training for women and girls who are school drop-outs. Since inception of the programme in 1958 till March, 1994, about 72.0 millions adult women and young girls received continuing education and vocational training with a total expenditure of Rs. 657.2 millions.

Welfare and Support Services

The national machinery has spread a wide network of a large number of support services for women and children belonging to lower economic strata through voluntary organizations. These support services represent an important plank for the empowerment of women as they reduce the burden of child care and employment related problems such as Hostels for Working Women, Creches for Working/Ailing Mother's Children, Integrated Child Development Services (ICDS), World Bank assisted ICDS projects, scheme for Adolescent Girls, and the Early Childhood (pre-school) Education (ECE).

Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Japan

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Introduction

The Status of Girls and Women in Japan

In terms of the current status of women in Japan, the educational levels and indices related to health are high compared to the rest of the world. However, actual conditions reveal that:

- While the participation of women in policy decision-making is steadily increasing, it remains relatively low;

- Women are participating more actively in the society, but the social environment needs to be improved in order for women to fully develop and utilize their abilities. As a result, average wages for women are lower than that for men;

- Housework, child care, nursing and other tasks remain largely as women's responsibilities, thus making it difficult for women to manage, at the same time, both working and household life;

- The stereotyped geder role remain deeply rooted and it is largely admitted in society that men have received more favorable treatment than women in politics, social concepts, practices and customs.

For these reasons, as we move toward the year 2000, efforts are being made to promote comprehensive policies based on "the New National Plan of Action Toward the year 2000" and to improve institutional arrangements for these policies. These efforts are based on the concept of equality between men and women and, aim toward the creation of a society that ensures equal and active participation by men and women at home as well as in various areas in the society.

Recent Trends in Employment Opportunities for Girls and Women

The population of female labour force in Japan is increasing from 21.8 million in 1980 to 26.8 million in 1993; women now account for 40.5% (38.7% in 1980) of the total labour force population. The rate of working women to the total female population of above 14 years old is also rising and has reached 50.3% (78% for males) in 1993 (47.6% in 1980).

The number of female employees has been increasing each year and reached 20 million in 1993 (13.5 million in 1980); it was 38.6% of the total number of employees (34.1% in 1980). Female employees have also undergone great qualitative changes. The average age of female employees was 36.0 years old in 1992 (34.8 years old in 1980). Approximately 60% of them were more than 34 years old and nearly 70% of them were married. Female employees are also becoming more and more highly educated. One fourth of these employed women have graduated from junior colleges or universities. Women's average duration of working period is also becoming longer and longer each year. In 1992, this figure reached 7.4 years (6.1 years in 1980) and one fourth of the female employees have continued working for ten years or more (less than one out of five in 1980).

Classified by industries, in 1993 the number of female employees increased in the service sector and other tertiary industries, and the increasing rate of that in secondary industries slowed. By occupations, the greatest number of female employees are engaged in office work followed by manufacturing/construction and professional/technical work.

Current Trends in the Enrolment of Girls and Women in Technical and Vocational Education System

Elementary and Secondary School Education

The number of children receiving compulsory primary and lower secondary school education was 14 million and 6.9 million of them were girls. Statistical data shows that 99.99% of the total population receive primary and lower secondary education in Japan.

Upper secondary schools offer general and specialized education. They provide three options. One option is general courses which provide academic education, another is specialized courses which give vocational education such as agricultural, industrial, commercial, fishery, home economics, nursing, science mathematics and English language courses, and the third is an integrated course. In 1994, a decision was made to establish integrated courses that allowed students to take both general and specialized subjects according to their choice.

Upper secondary schools with part-time courses and correspondence courses are available in order to allow working youths to obtain upper secondary school education. In 1992, the number of students in upper secondary school courses was 5.2 million and 49.7% of them were girls.

At the upper secondary level, the most popular course among girls is general course, followed by commercial and home economics courses. As regards boys, the general course is the most popular followed by industrial and commercial courses.

In 1992, there were 17 national upper secondary schools, 4,166 public upper secondary schools and 1,318 private upper secondary schools. Among girls schools, there was one national upper secondary school, 78 public upper secondary schools and 245 private upper secondary schools: they were 4.1% of all national and public upper secondary schools and 37.6% of private upper secondary schools.

The number of female teachers in primary and lower secondary school levels is gradually increasing each year. As of 1 May 1993, the percentage of female teachers was 60.4% (56.6% in 1980) in elementary schools and 38.4% (32.0% in 1980) in lower secondary schools and 21.8% (17.9% in 1980) in upper secondary schools. The number of female school principals was 7.2% (2.0% in 1980) in elementary schools, 1.2% (0.2% in 1980) in lower secondary schools and 2.5% (2.5% in 1980) in upper secondary schools.

Higher Education

Institutions of higher education in Japan include universities, junior colleges, colleges of technology and special training colleges.

As of 1 May 1992, the number of students was 2,293,000 in universities, 672,000 of them were female (29.3%), and 525,000 in junior colleges and 481,000 of them were female(91.7%). The percentage of female students was 29.9%(22.1% in 1980) in undergraduate universities, 18.5%(12.9% in 1980) in master's degree courses and 16.6%(9.0% in 1980) in doctor's degree courses. The number of women at both university and junior college levels is increasing each year.

The most popular field of studies for females at university level (undergraduate) are humanities, followed by social science, education, and health. In comparison with males, the proportion of females studying humanities and education is high. But in recent years, it has been decreasing and on the contrary, the proportion studying social sciences has been increasing. Recent trends indicates a shift in women's choice of their fields of studies. At the junior college level, the most popular field of study is humanities, followed by home economics and education.

Factors Determining the Orientation of Girls and Women towards Technical and Vocational Education

Economical Factors

After World War II, Japanese economy has experienced rapid growth based on the active private investment and growing domestic-demand. The increased national income has enabled Japanese people to enjoy the high standard of life as well as high standard of education for all.

The growing economy and demand for labour force brought about more and more women's involvement in economical activities. Moreover, there has also been a great structural change of Japanese industry based on the technological innovations. The most remarkable change was the expansion of the service sector, which has absorbed a large number of female labour. The percentage of workers in primary industries declined from 41.1% in 1955 to 9.3% in 1985 and, on the other hand, the percentage of workers in tertiary industries jumped from 35.5% in 1955 to a majority of 57.3% in 1985. A statistical data showed that 75.5% of the total adult population worked in the service sector including 69.4% of adult female population in 1988.

In general Japanese economic growth has made positive influences on women's involvement in both education and employment sector in quantity. The desirable direction of the future Japanese economy are: enhancement of efficiency and growth of firms and the national economy; enhancement of social welfare of its people in terms of material consumption levels and quality of life; harmonization with the international economy. In particular, it is now necessary to shift priorities to the improvement of the quality of life to carry out structural adjustment for that purpose.

Sociological Factors

After the International Women's Year and the UN Decade for Women, the Japanese Government has been improving the legal conditions for women by ratifying the Convention on the Elimination of All Forms of Discrimination against Women and facilitating national legal measures relevant for status of women, for example, the Equal Employment Opportunity Law.

In recent years, new important social changes has occurred: changes of family structure, decreasing fertility rate, fading solidarity in community, over-population in major cities, destruction of natural environment, etc. Moreover, the average life expectancy has been longer and longer (male: 76.09 years old, female: 82.22 years old in 1992) and average income level is increasing.

Under these social phenomena, people's mentalities are gradually changing and women began to participate in various fields of society: a variety of occupations, social and cultural activities, vocational training, activities for advancement of women's status, voluntary activities, etc. These activities based on women's increasing needs for learning lead them to self-enlightment as well as development of their personalities. However, it is also true that traditional and cultural gender biases and stereotyped gender roles deeply remain in society and prevent full development of women's potentialities and self-realization now.

Employment-related Factors

As mentioned above, more and more women have been participating in labour market. Statistical data shows that there are different tendencies between men and women in the employment sector. It is natural that these conditions be reflected in boys' and girls' selection in education sector.

According to the Labour Force Survey by the Management and Coordination Agency, the percentage of women in managerial occupations in 1993 was 8.5%. It increased by 3.5% point in comparison with 1980, nevertheless it remained low.

A look at average wages for male and female employee (excluding part-time workers) showed that the wages for women were approximately 60% of those for men. This discrepancy is explained by the seniority salary system familiar in Japan where students generally enter companies immediately after graduation and receive higher wages as they accumulate experience through in-house training and job transfers. Because there are still many women who give up her career due to family reasons such as pregnancy, childbirth, child care, etc., they tend to continue working for relatively fewer years than men. It leads women to the lower wages in average.

In terms of the wages of "standard workers"(those who enter a company immediately after graduation and remain employed by the same company), in 1992 for upper secondary school graduates in their twenties the wages of women were approximately 70% of men's wages. These gaps reflect the differences of the type of industry, the size of company, the respective fields of employment, the type of occupation where men and women are generally engaged. Recently, the number of part-time employees is increasing due to the expansion of the service sector and changing attitude of workers toward employment. The percentage of women in part-time job among the total was 67.1% in 1993. Many women who has family responsibility choose a part-time job because of its flexibility.

Educational Factor

In 1993, 95.3% of all boys and 97.2% of all girls enrolled in upper secondary school. Students, parents and teachers are so enthusiastic about education that many children attend extracurricular activities on the private basis and private classes in addition to elementary and lower secondary schools. Children are under a great pressure to success academically in Japanese society that, regrettably, attachs considerable importance to educational achievement (for example, the name of university which one graduates).

High quality of education is equally open to all boys and girls. The quality is assured by comprehensive measures: national curriculum standard from kindergartens to upper secondary level, "Enforcement Regulations for the School Education Law" fixing the minimum number of school weeks per year for kindergartens and the subjects to be offered in elementary and secondary schools, the system of textbook authorization for elementary and secondary levels, the system of teacher certificates, the system of in-service training of teachers, etc.

Present Measures to Promote Equal Access of Girls and Women to Technical and Vocational Education

The Japanese Government has been making effort directly and indirectly to realize this purpose through following measures:

- Making home-economics compulsory for both boys and girls;
- Promoting education for equality;
- Enhancing attractiveness of vocational education;
- Establishment of integrated course;
- Enriching guidance;
- Supporting women's participation in employment.

Making Home-Economics Compulsory for Both Boys and Girls

As a result of the process of the ratification of the Convention on Elimination of the All Forms of Discrimination against Women, the same curricula for both boys and girls were realized at last.

Home-economics was required for girls only before, however, it became compulsory for both sexes in lower secondary schools in 1993 and in upper secondary schools in 1994. The aim of this reform is to give both "future" husbands and wives the opportunities to basic knowledge and skills to create happy family life, coping with changing social environment: increasing nuclear family, women's active involvement in employment, the aging society, etc.

As mentioned before, because equal opportunity for education including vocational education has been guaranteed for both sexes, the biggest reason for different tendencies by gender is the traditional attitudes towards gender roles. In this sense, this reform can play a key role to break the gender biases and misconception in children's minds.

According to the reports from schools, boys enjoy learning cooking, sewing, child-care, etc. and understand that these skills and knowledge concerning family life are essential for their lives.

Promoting Education for Equality

Education on human rights including equality between men and women is carried out at each educational level in all areas, in particular, in social science, moral education and special activities.

In secondary schools, guidance/counselling is available for all students, both boys and girls. It is a part of every school activity and encourages students to think about their lives and the future paths suitable for themselves.

Sex education is being conducted not only for the purpose of providing scientific knowledge but also fostering understanding of human relationship based on mutual respect and equality between both sexes.

Since 1964, parent education classes have been provided in communities. In particular, classes for future parents, especially fathers have been encouraged. Furthermore, in 1994, parents education classes for fathers established at the workplace.

Enhancing Attractiveness of Vocational Education

In Japan, there has been a general tendency to value academic education rather than vocational education. The number of students who attend vocational upper secondary schools has decreased from 40% in 1970 to 25% of the total Upper secondary population. The preference of academic education is even stronger among girls.

In order to encourage both boys and girls to selsct vocational education, the promotion of vocational education has become an urgent task in recent years. The Ministry of Education, Science and Culture has been taking the following measures for this purpose with great emphasis:

- Improvement of the contents of specialized subjects;
- Improvement of facilities and equipment;
- Improvement of teacher training;
- National Vocational Education Fair.

Establishment of Integrated Course

In April in 1991, Central Council for Education recommended the necessity of diversification and flexibility of upper secondary education. Following to this recommendation, important policy measures were implemented: the reform of school system and course system, improvement of the methods and contents of education and revision of the selection process for admission to upper secondary school.

Following the recommendation, an Integrated Course option has been created as the third course in upper secondary schools. In this new course, student are relatively free to select subjects from various fields of study. They choose what they want and make their own study plan. By enjoying freedom and active learning, students are expected to cultivate the ability to learn independently. This kind of ability is essential to work in a rapidly changing society where new knowledge and skills will become quickly out of date.

Enriching Guidance

An important aspect of efforts to improve career guidance in lower secondary schools is the expansion of instructive experiences that encourage boys and girls to consider meanings of work and their future life choices through firsthand experience, such as visits to upper secondary schools, trial enrolment, visits to and experiences in workplaces and the invitation of people from various sectors of society to talk about their own experiences to students.

Prefectures, municipalities and schools have implemented various measures to provide students with opportunities to participate in experiences including workplace experiences and study relating to future career paths. These activities were realized on the basis of inter-ministerial cooperation at national level, which enabled close collaboration among the education sector and the various industrial sectors at local level.

In fiscal year 1994, Ministry of Education, Science and Culture initiated the Comprehensive Programme to improve Career Guidance in Lower Secondary Schools in 59 municipalities throughout Japan. The purpose of the programme is to improve career guidance through practical research including work experiences and social service. It is designed to expand instructive experiences and other activities in cooperation with local communities: lower secondary schools, higher-level schools, PTAs, local companies, social education groups, government agencies, etc. Three years' experiences through these activities provide students with a systematic approach which fosters career awareness in their minds.

Efforts to improve career guidance in upper secondary schools include a programme popularly known as Labour Experience Trial Study, which was introduced in 1993. This programme is intended to enhance the awareness of students in general courses about their choice of future occupations and life style by providing opportunities to experience the joy of work and social service.

Supporting Women's Participation in Employment

The Equal Employment Opportunity Law has been enforced since April 1986: its purpose is to ensure equal opportunity and treatment for men and women in the workplace, and specifically in personnel management ranging from recruiting and hiring to retirement and dismissal.

In order to make working life compatible with family life, the child-care Leave Law which concerns child care leave for workers of private companies has been enforced since 1992. The law entitled either the father and mother of children under the age of one to obtain child-care leave in order to care for his/her children upon application to his/her employers.

Assistance is being provided for women who left the job market in order to raise their children and are now seeking re-employment. This assistance includes programmes to raise women's motivations, provide information about re-employment and also provide opportunities to develop skills that will facilitate employment.

Various issues have been raised regarding the employment conditions of part-time workers. In order to make part-time work more attractive, the Ministry of Labour enacted in 1993 the part-time Work Law. The Ministry is also using every opportunity to promote awareness and provide guidance to workers and employees based on this law. In addition, it is expanding assistance through consultation, the provision of information and seminars for part-time workers, those seeking part-time employment, and companies employing part-time workers.

Future Strategies and Plan

In Japan today, the development of society as a result of more free time and greater income has brought an increase in desire of people to learn. At the same time, there is a growing need to engage in learning throughout life as a result of progress in society and technology, internationalization and the advance of the information age. For this reason, in addition to the school education offered during childhood through youth, efforts are being made to build a society in which one can freely choose among various learning opportunities at any time in one's life and benefit from the result of such learning.

Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Malaysia

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Introduction

Gender relations have identified women as individuals of many identities with their traditional roles such as wife, mother, grand-mother, sister, daughter, etc. As a result of developments in socio-economy, technology as well as education, Malaysian women have participated in various modern employment. In the present-day sector of employment, therefore, there are women managers, entrepreneurs, engineers, doctors, lawyers, professors, and architects, to name a few. These professionals among women were unheard of before, until in the past two decades. The most important factor contributing to these changes is the advancement of women in education particularly in the field of sciences, technical and vocational education.

While advances in the access of women to various disciplines of education have, to a large extent, improved the status and living condition of women and the general population in Malaysia, there is still disparity between men and women in terms of involvement in technical and non-technical courses during the formative years of secondary and post secondary education, as well as in tertiary education. This eventually dictates the imbalanced participation of men and women in various sectors of employment.

This paper aims to discuss the perspectives of girls and women in relation to efforts towards their access to Technical and Vocational Education.

The General Status of Women

Population and Health

Women in Malaysia accounted for 49.5 percent of the country's population of 19.05 million in 1993. This gives a sex ration of 102. Within the 13-year period from 1980 to 1993, the life expectancies of both males and females had increased from 66.4 years for male and 70.5 years for female to 69.1 years and 73.8 years, respectively.

Some indicators related to the general improvement in health status of women and their families are as follows. The infant mortality rate had reduced from 23.9 percent in 1980 to 11.7 percent in 1993. Similarly the maternal mortality rate from 1980 to 1992 had reduced from 0.60 to 0.20. The age dependency ratio which is indicative of the responsibility of women to take care for the aged had not changed much which is 75.0 in 1980 and 67.6 in 1992. The fertility rate among women has been reduced from 4.03 in 1980 to 3.6 in 1990.

Participation in Employment

Employment data for major sectors of employment show some trends. In agriculture sector, there was a steady decline of the percentages of employment among male and female labour. For example, among the employed females the percentage was 49.3 in 1980 reduced to 20% in 1992. The most remarkable increase of employment for women are in sectors of manufacturing (increase from 16.3% in 1980 to 30.8% in 1992), wholesale and retail trade, hotels and restaurants (increase from 19.5% in 1980 to 19.6%), services sector (increase from 19.5% in 1980 to 22.2% in 1992) and finance and business services (1.6% to 4.5%).

Another trend in employment of men and women can be seen by looking at their employment in some selected professions in the private sector. With the increasing importance of services sector and industralization, the data as presinted in Table 1 are useful to give some insights on women in Technical and Vocational Education in both secondary and tertiary education.

The data in Table 1 show that there are about equal representation of male and female professionals as accountants and lawyers. However, male exceeded female as building draughtsmen, dentists, engineers, surveyors and veterinary surgeons. The profession that has higher representation of female compared to male is as doctors. This implies that there have been partial advancement of women in professional employment due to uneven enrolment of

Table 1 ***Employment by Profession and Gender in the Private Sector, 1992***

	Male		Female	
	Number	%	Number	%
Accountants	5,666	44.4	7,104	55.6
Building Draughtmen	395	73.2	145	26.8
Dentist	295	76.2	86	23.8
Doctors	3,985	23.8	12,714	76.2
Engineers	8,275	71.0	3,386	29.0
Lawers	8,059	41.8	11,230	58.2
Surveyors	6,889	73.3	2,453	26.3
Veterinary Surgeons	132	66.3	67	33.7

Source: Compiled from Department of Statistics (1992).

female students in the relevant courses of science, technical and vocational in the secondary as well as in tertiary education.

Technical and Vocational Education System

Technical and vocational education system in Malaysia has been established for the past 30 years. It was originally meant and is still a part of general education in the upper secondary and post-secondary levels. It comprised four fields of study, namely, Industrial Arts, Agricultural Science, Commerce and Home Science. The objective then was to prepare students for employment situations that called for skill, knowledge and the proper attitudes towards work.

Technical and vocational education system is constantly challenged by the development emphasis of the country. With the present move towards industrialization, the technical and vocational education curriculum has shifted more towards engineering (electronic, electrical, civil and mechanical), building and construction, and commerce. Technical and vocational education system could take from a minimum of two-year duration (to receive the Malaysia Certificate of Vocational Education or the Malaysian Skills Certificate) to a maximum of nine-year duration (to receive the related diploma or degree). The system will provide workers in a wide range of categories i.e the semi-skilled workers, skilled workers, sub-professional middle management and professional.

Today's objectives of technical and vocational education are: i) To develop in the students an appreciation and interest in the fields of science and technology; ii) To provide the necessary foundation for students who wish to further their education; iii) To develop relevant skills, work habits, attitudes and responsibilities in the students so that they can be employed accordingly and productively; and iv) To help in industrialization and modernization programmes of the country by providing competent manpower needed in the employment sector.

Technical and Vocational Education System and the Gender Perspective

Despite the three decades of establishment in the national education system, technical and vocational educational has not produced a fairer proportion of male and female school leavers equipped with technical and vocational education qualifications. Several factors could explain this scenario. Among others, this is due to the trends in the enrolment of students by gender in both technical and vocational schools, and to a lesser extent is due to the trends in teachers employment according to male and female teachers.

Number of Technical and Vocational Schools

The total number of technical and vocational schools (refers to both at secondary and post-secondary levels) is actually very small compared to the total number of academic secondary schools. For instance, the latest data in 1994 show that technical and vocational schools made up 5.4% of the total secondary government assisted schools. This comprises 69 vocational institutions and only 9 technical institutions.

Enrolment

In terms of number of enrolment in technical vocational education in upper secondary schools and post-secondary institutions by sex from 1986 to 1994, the intake of male students each year very much exceeded that of female students in both technical and vocational institutions (with the range of 71 to 75 percent for males and only 25 to 29 percent for females).

However, the general enrolment of female students according to stream has increased from 1970 to 1990. For example, in science stream, the percentage of enrolment has increased from 24.5 in 1970 to 44.7 in 1990; while that in technical and vocational stream has increased from 28.5 percent in 1970 to 57.9 percent (see Table 2).

Teaching Staff

In terms of teaching staff there is a closer gap between number and percentage of male staff and that of female staff compared to that of students enrolment. For example in 1987 the percentage of male teaching staff was 74.1 compared to that of female teaching staff of 25.1 percent; while in 1994 the percentage was 64.9 and 35.1 percent, respectively.

A fairly equal distribution of male and female teachers and instructors is important to create better environment of learning among boys and girls. This could happen in various ways. First, teachers could act as a role model. The stereotype model of Home

Table 2 ***Percentage of Female Enrolment by Levels of Education, 1970-90***

	Levels of Education	1970	1980	1990
	Primary	46.8	48.6	48.6
	Secondary	40.6	47.6	50.5
	Upper Secondary	42.6	45.5	59.3
	University	29.1	35.5	44.3
College	Polytechnic	13.2	21.5	25.2
	Teachers Training Institution	41.9	48.3	56.1
	Mara Institute of Technology	32.4	42.9	45.8
	Tunku Abdul Rahman College	23.5	33.9	37.2
Stream	Arts	47.4	61.0	64.8
	Science	24.5	36.3	44.7
	Vocational	24.2	30.4	22.0
	Technical	4.3	27.1	35.9

Source: Sixth Malaysia Plan, 1991-95 (1991).

Science teachers are female teachers and the Industrial Arts teachers are male teachers should be changed by having better representation of male and female teachers in all technical and vocational education curriculum. In other words more female teachers should be trained and employed in the male-dominated curriculum of engineering, construction and commerce, and similarly there should be a balanced number of male teachers in the female dominated curriculum of Home Sciences.

Second, technical and vocational education involves a high participation of students in practical learning. Higher recruitment of female teachers should enable a better number of enrolment of girls in all technical and vocational education streams. According to the theory of educational psychology, homogeneity between student and teacher is contributive to the performance of the learner (Astin, 1985). This is especially pertaining to the learning-by-doing exercises in the classrooms which are very much the characteristics of technical and vocational education system.

Enrolment in Institution of Higher Learning

This section will highlight the nature of students enrolment by programmes and gender in an institution of higher learning in Malaysia, that is Universiti Pertanian Malaysia (UPM). UPM is a leading university which provides curriculum mostly in science and technical courses, aims to meet the expanding needs of industrialization in this country.

UPM has ten faculties which are all offering science and technical-related courses (with the exception of Faculty of Educational Studies which has equal number of students from science and arts background). Students enrolment in 1994/95 sessions shows that there are about equal number of male and female students in the Faculties of Economy and Management, Veterinary Medicines and Animal Science, and Agriculture. While male students out-number female students in the Faculties of Engineering, Forestry, Fishery and Marine Science, and surprisingly in Educational Studies, female students exceed the number of male students in the Faculties of Human Ecology, Science and Environmental Studies and Food Science and Biotechnology.

These latest data on enrolment in UPM show a slight improvement in terms of male and female students representation in various faculties compared to that in the 1970's and 1980's in all institutions of higher learning in general. The data in Table 2 further supported this trend. Higher enrolment of female students, generally in all faculties is due to the increase number of qualified girls from the science streams of the academic schools and technical and vocational education schools, and the changing policy of the institution regarding the proportion of male and female students. However, girls are still attracted to science and technical courses other than the male-dominated courses of Engineering, Forestry, and Fishery and Marine Science.

Factors Affecting the Orientation of Girls and Women towards Technical and Vocational Education

Based on the data on the enrolment of students in Technical and Vocational Education schools and institutions and in the science and technical-related courses in the institution of higher learning, one should conclude that the situation has improved tremendously compared to that during the sixties and seventies. With present measures and future strategies formulated, it is hoped that bias in terms of access of students to Technical and Vocational Education in future could be corrected.

The discussion that follows highlight briefly the factors affecting the positive orientation of girls and women towards Technical and Vocational Education. It can be broken down into economic, sociological, technology and education.

Economic Factors

Malaysia is now at the threshold of achieving the status of industrialized nation. The country needs a high level of manpower for the expanding sector of industry and manufacturing at all professional, managerial, skilled and semi-skilled levels. To meet the need of employment, male labour alone is far from sufficient. In 1992 sectors like manufacturing, business and services have attracted about 78 percent of the total female labour force. Some industries like electronic and textile which are labour intensive, employ about 90 percent women workers especially at the semi-skilled and operative levels. This scenario of employment points to the need for higher qualified and better educated school-leavers and graduates, hence, suggests the increased enrolment of students especially among the females.

Sociological factors

There have been changes in the attitudes of societies regarding education of their male and female children. Access of male and female children is already equal. One of the long term goals of education is to get employment regardless whether you are a male or female individual. Employment is mainly found in the industrial or modern sectors in the urban areas, or to be self-employed both in urban and rural areas. Due to the above changes, male and female students have to be equipped with the technical and vocational skills.

There are also changes regarding the traditional attitudes of perceiving the family bread-winner is only the male. Data show that the incidence of double-income earners in a family, as well as the female-headed families are increasing. These are due to compelling factors such as low economic status, and the separation between spouses due to divorces, and deaths and migration of male spouses to urban areas (Cecilia Ng, 1985; Maimunah, 1992).

The attainment of a higher level of education among male and female spouses also contributed to the increase number of double-income earners families. These facts point to the conclusion that employment drives a society to attain a certain level of education especially in the field of science, technical and vocational education.

Technological Factors

The working environment of today, whether in the rural or urban, or even in the house, is technologically driven. Among the impacts of technology in the rural areas are women are being displaced from the labour force and are seeking for employment in industries in the urban areas (Husna and Laily, 1988). These migrated workers need some skills for them to work. For those women who are left working in the rural areas, they should be knowledgeable with the proper use of low to medium modern technologies. In this context, the relevant knowledge and skills are needed. They are not only acquired during the formal school system of Technical and Vocational Education but also through various non-formal educational system provided by extension agencies.

Similarly, women who work in the house deal with various kinds of modern appliances such as washing machine, television, vacuum cleaner, cooker, hand-phones, etc. This creates a technology-based environment, which to a certain extant, influences one's attitude and outlook towards the needs of technical education.

Educational Factors

Malaysia has its literacy rate (for the age of fifteen and above) of 78.4 percent in 1990 which is above the average of 70 percent for countries of Asia and Pacific (United Nations, 1994). Improved level of literacy in general is due to the increase number of schools built. For example, in 1994, there were a total of 1,432 secondary institutions together with about 800 private schools and institutions. The latter accounted for about 40 percent of the total number of secondary and post-secondary institutions (regardless the nature of education whether technical or non-technical orientation, but majority of private education establishments provide courses for the needs of industrial sector).

Another educational-related factor that promotes the better orientation of girls and women to Technical and Vocational Education is the significance of projecting the image of successful women in career. This is especially in the field of science and technology, besides perpetuating their good image as mothers and wives. This role-model concept is being continually projected and inculcated to public and school children so as to break the stereotype idea of "women's place is at home and men's place is at work" which the latter requires science and technology more than the former.

Present Measures

During the Sixth-Malaysia Plan (1991-95), Malaysia is implementing the National Policy on Women in Development. In terms of education, there should be an equal access of male and female children to education. Greater emphasis is being placed on the higher intake of female students in the science, technical and vocational fields at secondary and post-secondary education as well as tertiary education. For example, there was a substantial increase of female enrolment in the overall technical stream from 4.3 percent in 1970 to 35.9 percent in 1990 (Sixth Malaysia Plan, 1991).

Since Malaysia is having sensitive policies on Women and Development, there have been emphasis on the Research and Development (R&D) activities conducted by academic institutions and other concerned organizations. Women Studies or Gender Studies units or divisions are already set up in some academic institutions. This is accompanied by frequent fora, conferences and meeting conducted at both national and international levels. The aim is primarily to discuss women issues and to crystalize strategies and actions to develop women not only in the field of education, but also in employment, health and overall social lives. R&D activities have actually provided some baseline data for women. The data were used not only to develop projects and programmes for women but also to improve policies on specific areas such as marriage and divorce, domestic violence, development of youth and employment.

Another important measure is the continuous inculcation of the image of modern Malaysian women with their multifaceted roles—with brain, career and traditional roles. This measure is being on the move. Such a good image of women is being portrayed through the mass media, drama and annual awards of successful women such as the best women managers, exemplary mother, women farmers of the year, and the like.

There is an innovative practice conducted in schools regarding the self-employment prospective among school-leavers through entrepreneurship. UPM through its Centre of Small Business of the Faculty of Economic and Management together with The Ministry of Education is now conducting an outside programme for selected secondary schools in this country to train youths in business and entrepreneurship (UPM Library, 1994).

In self-employment opportunities for women, among the measures taken are the policy on early retirement of women at the age of 45 years. Many women, as well as men, choose to self-employment after their early retirement. Parallel to this, there are support systems which encourage the self-employed women individuals. Among institutions which provide skills training for women entrepreneurs are IKWAM (Institute for Women and Development in Malaysia) and the associations of women entrepreneurs such as Peniagawati and NAWEM (National Association of Women Entrepreneurs of Malaysia). A recent study has indicated that the business areas of self-employment for women are very broad. Women should be able to venture into business in male-dominated areas such as banking, insurance, consultancy and wholesale to traditionally-female dominated areas such as boutique and tailoring, food catering and restaurant, and home decoration (Maimunah, 1995).

Future Strategies and Concluding Remarks

Malaysia will continue in future implementing the existing policies and measures in other to promote better access of girls and women in Technical and Vocational Education. The above policies and measures are actually more global, not only limited to educational programmes but also to other related sectors such as employment and socio-cultural development. In terms of expenditure in the secondary school it is suggested that the future allocation in the technical and vocational schools should be increased from the present percentage of 8.8 (Sixth Malaysia Plan, 1991).

It is believed that the future provision of Technical and Vocational Education and hence employment would not be of gender bias considering the present resources available such as the increasing trends of female enrolment and the graduates.

Ministries and development agencies should be more serious in playing their roles to develop their women target groups.

Success in developing women through the various women's programmes would spur progress in other fields especially education and employment. Women should be made as better actor not only as beneficiaries but also as participants of development activities. Giving better access to girls and women education in general, and Technical and Vocational Education in specific is one of the many ways towards achieving this goal. Technical and Vocational Education has indeed, not only given the students the necessary technical-based training but also an understanding of what they, males and females, may expect in future employment.

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Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in the Republic of Korea

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Introduction

The notable economic growth which has been achieved in the past three decades in Korea is in large part due to the female labor force in the manufacturing sector. However, women's contribution to the development process has not been given due recognition or deliberate consideration in planning and evaluating development activities until very recently.

The Sixth Five Year Economic and Social Development Plan (1987-1991) which included a women's section marked the beginning of integrating women's concerns into the overall national development planning and recognizing the linkage between national development and the development of women. In the Seventh Plan (1992-1996), particular attention was given to removing obstacles to women's participation in all aspects of national life. The Five-year Plan for the New Economy, which replaced the Seventh Plan, accords special attention to the well-being of working women. Necessary policies have been incorporated into the plan for education, employment, culture and social action, social welfare and international cooperation.

Integrating women into the development process is a continuing struggle. The view on the role of women in less developed continues to be transformed to meet society's needs for women in both the developed and less developed world. As of the economy of a nation develops from an agrarian to an industrial economy, expectation from women has changed to include a contribution to the development of the nation as workers as well as mothers and wives. Particularly, there are strong demand for women to participate more fully in the areas of science and technology to increase the overall productivity of the workforce. Unlike the expectation for women to play their multiple roles, however, personal and societal constraints prevent women from actively participating in the process of development.

One of the most essential measures to empower women to overcome their difficulties and to promote their participation in the process of national development as well as women's own development is to ensure gender equality in the access to technical and vocational education. This paper examines firstly, factors determining the orientation of girls and women towards technical and vocational education, secondly, present measures to promote gender equality in the access to technical and vocational education, and finally future strategies and plans.

Status of Women in Korea

Status of Women in the Family

The Family Law, in its 1958 version, contained many traditional elements in contrast to the principle of gender equality, especially with respect to marriage, divorce and inheritance. The Law was revised in 1990, removing many of the discriminatory elements. A few of the most remarkable changes include a woman's right to head a family, something previously unthinkable in the country's heavily Confucian cultural context, and the removal of male privileges in inheritance. The revised Law also accords women the right to claim their share of family property although it may be in their spouses' name and, thus, officially recognizes the wives' contribution to the accumulation of family assets. It also grants a divorced woman the right of guardianship over her children.

The sex-role division of labor is however still strong. The average hours of household work was 5 hours and 29 minutes for married women and 38 minutes for married men during weekdays in 1990. Even when a woman was employed, she did household work for 4 hours and 31 minutes while an employed man did for only 36 minutes during weekdays.

The number of divorced couples are on the increase. The divorce rate of married couples increased from 3.1% in 1960, to 5.4% in 1970, 7.9% in 1980, and 10.5% in 1985. With regard to reasons for divorce, the proportion of divorce cases due to troubles between the husband and wife is the largest (83.6% in 1993) and it has been increasing. In particular, younger women's claims for divorce have apparently increased since 1980. The tendency gets stronger that women pursue an independent life when they are ignored or abused or they find difficulties in maintaining equal relationships with their husband.

Status of Women in the Employment

As of 1993, the economically active female population 15 years old and over numbered 7.88 million, which was 1.91 million persons more than in 1985. The rate of female economic participation also increased from 41.9% in 1985 to 47.2% in 1993.

The female proportion employed in the primary sector has

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sharply declined in recent years in contrast with an increase in the tertiary sector. As of 1993, 60% of female workers were employed in the social overhead capital and service sector, 23% in the mining and manufacturing sector, and 17% in the agriculture, forestry, and fishery sector. These figures indicate a decrease in the percentage of women in the primary and secondary sectors between 1985 and 1993 by 10.8% and 0.2% respectively, while showing increases in the tertiary sector by 11% during the same period.

As to female employment by occupation, the distribution has steadily moved away from a heavy concentration in farming to production, sales and service occupations. In 1993, the largest proportion of female workers were in manufacturing, comprising 20.3% of all female workers. Those women in service and sales numbered 18.8% of all female workers each. They were followed by 16.9% in agriculture, forestry and fisheries, and 15.5% in clerical work. With regard to the professional technical/administrative and managerial categories, the female proportion increased from 5.4% in 1985 to 9.7% in 1993 showing the second largest increase following the clerical category whose proportion increased by 5.3% during the same period.

As for female employment by the status of workers, the proportion of employees among female workers increased from 48.1% in 1985 to 57.6% in 1993. Unpaid family workers reduced from 30.6% in 1985 to 23.6% in 1993. Own-account workers were 21.3% in 1985 and decreased to 18.9% in 1993. Although the ratio of unpaid family workers is on the decrease, it is much higher than the male ratio which was only 2.1% in 1993.

With regard to wages, women earn wages just a little more than the half of men's wages on the average. Wage differentials between the sexes have been reduced recent years, but as of 1993, wages women earned still remained 54.6% of men's wages.

Status of Women in Education

In enrollment by gender, no significant disproportion has been found in primary schools and middle schools. Between 1985 and 1994, almost all Korean children of school age were enrolled in primary schools and middle schools.

In high school enrollment, there are no apparent gender gap in the overall enrollment rate. 8In 1994, 88% of girls and 89.4% of boys of school age were enrolled in high schools. However, in regard to high school enrollment by the type of schools, significant disparities are found between the sexes. Male students are more likely to be enrolled in academic schools than are female students. In 1994, 62.4% of male students were enrolled in academic schools, whereas 54.6% of female students were so.

There also exists an apparent gender gap in the enrollment of vocational high schools by course. Male students are mainly represented in technical high schools, whereas female students concentrate in commercial high schools. While 57.6% of total male vocational high school students were enrolled in technical high schools in 1994, only 3.7% of total female vocational high school students were so. On the other hand, 62.2% of total female vocational high school students were enrolled in commercial high schools in 1994, whereas males accounted for only 16.0% of total male vocational high school students. However, the proportion of females enrolled in technical high schools among the total female vocational high school students is on the increase little by little. It increased from 0.3% in 1985 to 3.7% in 1994.

Enrollment in higher educational institutions also shows marked gender disparity. As of 1994, 33.8% of females and 63.8% of males of school age were enrolled in higher educational institutions. The percentage of high school graduates going to higher educational institutions was 43.0% for females and 45.3% for males. As of 1985, the number of students in institutions of higher education numbered 1,209,650 and females made up 29.4% of the total. As of 1994, the total increased to 1,671,803 and females accounted for 33.3%. By the type of higher educational institutions, the percentages of females were 31.0% in universities and colleges, 75.1% in teachers' colleges, and 36.8% in 2-year junior colleges.

With regard to the preference of the field of major at 4-year colleges and universities, women preferred in the order of social sciences, linguistics and literature, natural sciences, teaching, art, and home economics, while men did engineering, social sciences, natural sciences, and linguistics and literature. The percentage of women was the highest in the teaching profession making up 65.6% in 1994, followed by arts (63.5%), linguistics & literature (55.5%), and humanities (40.1%). In the field of engineering, only 5.8% of students consisted of women in 1994.

Factors Determining the Orientation of Girls and Women towards Technical and Vocational Education

(Here "+" and " – " indicate respectively positive and negative effects)

Industrial and Labor Market Structure

- The rapid economic growth and the expansion of the secondary and tertiary industrial sector increasing in demand for women's labor (+)
- The development of precision manufacture and the rise of elaborate skill requirement increasing in demand for women's labor (+)
- The specialization of jobs reducing the necessity for physical strength and increasing women's employability (+)
- The gender inequality in employment practices (–)

- Disadvantages of technical and vocational school graduates in comparison with academic school graduates in employment and wages (–)

Cultural and Social System

- Society's traditional expectations about appropriate roles for women (–)
- Women's low self-esteem (–)
- Misconceptions regarding women's physical capacities (–)
- General perception that machines and women are incompatible (–)
- General perception that underestimate the value of women's domestic work (+)
- The lack of awareness among girls and their parents of technical education and employment opportunities (–)
- The Lack of support facilities for women (particularly child care facilities) (–)
- Role conflict and the double burden of women (–)
- The Lack of male support in parenting (–)

Educational System

- Gender-bias in curriculum materials, the provision of courses, and equipment (–)
- The lack of appropriate career guidance education for girls and women (–)
- The expansion and development of the technical and vocational educational system (+)

Present Measures to Promote Gender Equality in Access to Technical and Vocational Education

Measures to Eliminate Socio-cultural Factors Generating and Perpetuating Fixed Notions vis-a-vis Gender Roles

Inculcation of Gender Equality as a Norm in the Minds of Public Employees

As part of a broader Government effort to eliminate the traditional and irrational prejudices against women, various public sector training institutions have engaged in a series of training activities for public employees at all levels. In 1992, 3,529 persons underwent such training in 31 separate courses. At present, the seven national training institutions have established training courses designed to sensitize public employees on women's issues as an integral part of their respective curricula.

In addition, in 1992, the Government developed a training programme aimed at developing and utilizing women's potentials in various sectors and distributed the programme to 44 adult education agencies throughout the country. In support of these training efforts, some cities and provinces have started operating Lecturer Banks to secure well-qualified lecturers and speakers. On the average, each Lecturer Bank manages 60-70 qualified persons. As of 1992, a total of 450,000 persons received training in 2,505 separate lectures.

Audio-visual materials, including movies, video tapes and slides, have been developed and distributed by the Korean Women's Development Institute for the purpose of impacting a broad range of the public. All Women's centers under the city and provincial administrations have been provided with these materials.

Elimination of Gender Discrimination in the Mass Media

The Government collaborates closely with the Broadcasting Committee, encouraging it to effectively redress instances of gender discrimination in the mass media. The Committee, having set down regulations governing the mass media in 1988, radically revised them in 1992 to ensure that the Committee's supervision over the media is a due process and that all people are accorded equal respect regardless of their occupational and educational backgrounds. In 1985, the Committee took the special step of warning all broadcasting establishments to refrain from projecting images harmful to the dignity of women and, in 1990, launched an Audience Grievance Committee to allow, among others, the general public to monitor the media contents and to demand rectification. The Korean Broadcasting Company (KBS), a Government-subsidized establishment, began a televised campaign to transform the public perception of women in 1990.

Measures to Eliminate Gender Inequalities in Education

Encouragement of Coeducation

Co-education is fairly wide-spread in Korea. As of 1994, all elementary schools were co-educational, and 55.3% of middle schools and 42.5% of high schools were so. The Government, by policy, encourages all middle and high schools being newly established to be co-educational.

Revisions of Curricula and Teaching Materials

As part of the Sixth Five-Year Economic and Social Development Plan (1987-1991), the Government has made it its policy to remove gender bias from the curriculum structure, textbooks and other teaching materials, and from career guidance processes. One of the specific features of the revisions is the integration of technical and home management subjects at the middle school level and the requirement for both sexes to participate in the integrated course. Another measure is to remove from the textbooks published since 1987 contents prejudicial to women, such as discriminatory descriptions of gender roles and women's status, and to balance the male and female representations in the illustrations.

Introduction of Gender Equality in Admission Practices and Career Guidance

The Government took steps to abolish gender-exclusive admission practices on the part of certain educational institutions. As a result, it is now possible for female students to enter colleges and universities previously inaccessible to them, i.e. the Technical College (since 1987), the College for Tax Administration (since 1988), the Policy Academy (since 1989), the Railway Junior College (since 1990), and Agricultural Cooperative Junior College (since 1991). At the time of this writing, the government is considering to permit women to be admitted to the military academies which are the only higher educational institutions still adhering to their male-only status.

In an effort to break down the gender-biased pattern of school advancement and career preparation of the past, the Government developed a career education programme for middle and high school girls and distributed a "Manual for Career Guidance of Middle and High School Girls" to all career guidance teachers. It also provided sensitization training to the principals and supervisors of all elementary, middle, and high schools for the purpose of promoting their support of the Government effort in the subject area.

Establishment of Girls' Technical High Schools

To develop the female workforce in the technological field and, thus, prepare women for the "high-tech" industries, the government encourages the establishment of new technical high schools for girls and the admission of higher percentage of girls by all technical high schools. The number of girls-only technical high schools increased from two in 1992 to eight in 1995. The total number of female students enrolled in the girls-only technical high schools reached 3,752. In addition, Ehwa Women's University newly established the school of engineering and plans to admit students from 1996 academic year.

Measures to Advancing Women's Status in the Labor Market

Legal Measures

Since the 1980's, a broad range of laws connotating gender biases have been revised to introduce the necessary institutional adjustments for the advancement of women. The legal measures for the expansion of women's labour force participation and the advancement of women's status in the labor market are:

i) Revision of the Labour Standards Act

Based on Article 32, Item 4 of the Constitution mentioned above, the Labour Standards Act was revised to ensure the equal treatment of men and women and to protect women's maternity rights. Previously, the Labor Standards Act was applied to a limited range of work places. Since its revision, (1) it is now applicable to all business/industrial establishments with five or more employees; (2) penalties for non-compliance have been strengthened; (3) the employer is required to grant menstrual leaves even without his or her employees requesting it; and (4) in order to impose over-time work on female employees, employers now need their consent whereas previously they only needed the permission of the Minister of Labour.

ii) Adoption and Revision of the Equal Employment Opportunity Act

This Act was adopted in 1987 for the purpose of (1) realizing the principle of gender equality in employment opportunities and working conditions stipulated in Constitution, (2) protecting motherhood, (3) developing women's occupational potentials and, thereby, (4) advancing their socio-economic conditions.

With the passage of this Act, the principle of gender-equal treatment of workers and the protection of maternity rights have been codified. It has now become possible to impose sanctions against an employer for gender discrimination in the process of recruitment and appointment.

While the Equal Employment Opportunity Act was the country's first legal measure for enforcing equal treatment for equal work regardless of gender and for protecting working women's maternity rights, there was a need to make these provisions explicit. Therefore the Act was revised in April 1989. Some of the more noteworthy among the Act's provisions are to extend unpaid child care leave up to one year and to make the leave period counted as part of the consecutive work period. Furthermore, in the event of a labour dispute, the burden of proof has been shifted from the employee to the employer.

Besides, the Act stipulates that "An employer shall provide equal pay for equal value of work within the same enterprise. The criteria on value-equal work are the degrees of technique, effort and responsibility involved, working conditions and other related factors in the process of work." Thus the equal pay for equal work principle has become a matter of law.

iii) Revision of the Infant and Child Care Act

The Infant and Child Care Act was revised on 14 January 1991 responding to a rapidly rising trend among Korean women to enter the labour market and participate in civic activities. The revision reflects the awakening on the part of Korean society as a whole to the public responsibility for the care of children. Under the revised Act, comprehensive child care service arrangements, with priorities for the children of low-income families with working mothers, are in the process of being established.

The above-mentioned arrangements include the requirement that all business/industrial establishments with more than 500 female employees must establish at least one day care facility within its own premises or subsidize external child care service charges.

The revised Act has not only established a ground for systematizing and expanding child care facilities and services as required by women's advancement into the social and economic fields but has succeeded in bringing in local governments and legislative bodies as major partners in the effort. At the same time, it has helped to establish in the public mind the fact that child care issues are simultaneously women's issues and issues for social welfare as a whole.

Other Measures

i) Establishment of Personnel Management Guidelines concerning Female Civil Servants

In December 1993, the Government established separate personnel management guidelines applicable to female civil servants prohibiting improper treatment of women in hiring, appointment, promotion, rewards, and training and, instead, encouraging a more rational personnel management approach. The guidelines ban gender segregation in all aspects of public personnel management practices as a matter of principle, and all actions related to their placement, promotion, training and awards, etc. are to be strictly on the basis of objective standards and performance.

In order to promote women's entrance to public service, a field where the profile of women had hitherto been extremely low, the Government, in 1981, introduced a gender-differential approach to public employee recruitment, whereby a portion of the Grade 9 (entry level) posts were reserved for women. With the rapid increase in the number of women wishing to enter public service during the most recent decade, the special approach proved to be counter-productive as far as the promotion of women's participation was concerned.

Consequently, in 1989, the Government abolished this approach, except where its application is unavoidable, such as certain sectors of the military and law enforcement. As a result, the proportion of women at the Grade 9 level increased to 30.3% in 1990, 43.3% in 1991, and 40.7% in 1992 whereas it had remained at around the 10% level in the previous years.

ii) Scrutinization of Private Institutions for Possible Violations of the Equal Employment Opportunity Act

Over several years following the passage of the Equal Employment Opportunity Act, the Government has implemented vigorous public information campaigns directed toward both the employers and their employees. Concurrently since 1990, the government provided active administrative guidance to all concerned. In the same year, many hospitals, private colleges and universities, hotels, etc., were scrutinized for possible violations of the law and obliged those in actual violations to redress their practices. In 1991, as the gender-differentiated approaches on the part of the banks to recruiting high school graduates as tellers, clerks, etc. was adjudged to be in violation of the Equal Employment Opportunity

Act, the banks concerned were asked to rectify their approaches. In 1992, the Government reviewed the personnel regulations of 169 business/industrial establishments, including not only banks but secondary financial institutions and 30 or more conglomerates of the country. Subsequently, all of them were led to take steps to change their personnel regulations and practices toward gender equality.

Future Strategies and Plans

Educational System

Technical and Vocational education should secure girls and women the opportunities to learn knowledge and skills demanded for advancing into all kinds, particularly, traditionally male dominant fields.

Concrete measures to achieve this goal include i) strengthening vocational guidance and training for occupations of all kinds, especially traditionally male-dominated occupations, ii) expanding vocational training for new production activities and technology, particularly, for those production areas in which precise skills are required, iii) establishing schools or departments of engineering within women's colleges and universities, iv) allocating quota for female students in technical and vocational courses, v) encouraging women to take science and technology by awarding scholarships for girls taking science and technology in colleges, and vi) establishing the Women's Education Development Fund in order to provide financial assistance to women advancing into science and technology fields.

Curricula for technical and vocational education should include content enabling girls and women to learn clear work ethics and attitudes of commitment to social activities.

Women's education should be able to suggest a future oriented role model of a woman who is active and transcending the present one of the traditional sex role stereotypes.

Parents' education should be provided to enlighten their consciousness since they have a significant effect on the career decision making of children.

The Government, the Labor Market, and the Society

The statutory framework for gender equality should be completed.

The measure should be taken to promote the effective implementation of the Equal Employment Opportunity Act.

The social security should be provided for family members assisting, unpaid, in family businesses.

The functioning of women's employment information centers should be activated.

Better support services, especially child care facilities, should be provided for women with respect to child rearing (health, education, nutrition) to reduce their domestic burden.

Men should be encouraged to share domestic chores and child rearing.

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Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Czech Republic

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The Status of Women in Czech Republic

Women composed 51.2% of the population of the Czech Republic. The typical Czech woman is married and employed and is the mother of two children. Women in this country form the majority of the population starting at middle age (from 44 years old) since men die earlier. The average life expectancy of women at birth in 1990 was 76 years (73.4 years in 1960), less than in any developed European countries.

The position of women in structure of Czech society has not hitherto been subject to sufficient study by sociology or verified empirically. Therefore the position of women in the Czech social structure can not yet be defined or analyzed precisely.

The Position of Women in the Family

In the period before the November revolution in 1989, an average Czech woman lived in a family with two children. There was a high rate of marriage, even for girls of under 18 years old and, at the same time, high divorced rate. The greatest number of marriages were made in 1990, through this was an exceptional year and since then the rate of marriage has fallen (1993 saw the second lowest rate of marriage in the post-war period). It is probable that a trend will appear that is familiar from the west where a proportion of couples live together without marrying. In 1990 the divorce rate was at its highest (of every 100 marriages 35.2 ended in divorce). It is expected that the divorce rate will now have a falling trend, naturally in the context of the diminishing number of marriages.

In the Czech Republic generally democratic relations prevail in families. Attending this good external impression is the impression that the family act as patriarchal organization though in fact in the household it is the woman who most frequently dominates. She does most of the housework and takes care of the children. Since she is for the most part employed, this puts undue demands in her and thus she does not have sufficient time for entertainment, various hobbies, for further education or public activity. It appears that women spend 4-6 hours daily on housework. This long period is explained by the striving of Czech women to have everything perfect in the household. Essentially on average 2 hours would be sufficient to do the housework. In Czech society the mann is traditionally considered as the chief breadwinner and the chief figure in the household although in reality without the work of women in employment and at home, most families would not be able to enjoy a corresponding living standard.

The family has always been highly valued in the Czech Lands. The high prestige of the family in the Czech Republic remains constant. For the most part the extended family functions, parents help their mature children and quite often grandparents live as part of the family.

The Position of Women in Education

In women's access to education the Czech Lands have a long and positive tradition. Compulsory school attendance was introduced in 1774 during the reign of Maria Theresa. In the 19th century efforts began to create educational institutions for women and girls. In 1865 the American Ladies' Club, which become the focal point of the drive for women's emancipation, and the Women's Manufacturing Union was founded. Girls won the right to become teachers (the first college for women teachers in the Austro-Hungarian monarchy was in Prague). At the end of the last century more and more schools for girls were founded, among others the girls' gymnasium, Minerva. In 1897 the first graduates of Minerva entered higher education. After the creation of Czechoslovakia in 1918, school attendance was made compulsory to the age of 15. The difference between less well educated women and better educated men began to balance out after the Second World War. Currently the lowest proportion of women who have passes through higher education is among the old (over 50 years old).

Czech law guarantees equal access of girls and women to education. The present Czech constitution took effect on 1st January 1993. Human rights are guaranteed in it by article 3 in which it is laid down that the Bill of Right and Liberties is part of the constitutional order. This is incorporated into the Czech legal system as constitutional law no.2. article 33. The Bill of Rights and Liberties states that everyone has the right to education, and that school attendance is compulsory for a period of 9 years. All citizens have the right to free education in primary and secondary schools, and depending on the abilities of the citizen and the capacity of society also to higher education. In addition to state schools there are private and church schools in the Czech Republic. The law states that under certain conditions, citizens are entitled during their study to the aid from the state.

The Position of Women in Society

During the past and up to 1990, women entered the world of work almost like men and on top of that had to ensure the functioning of the family. The role of worker, wife and mother that women held frequently exposed them to stress and did not allow them for the most part to play an one role precisely. Women were conceived until 1990 as "mother and worker," man as "worker or father" though never as "worker and father."

Currently a woman or girl in the Czech Republic is an individual with equal rights. She again holds several roles though she has greater opportunity to choose a particular role (for example, worker) as the dominant, particularly if she is paid such that her other roles (mother, housekeeper) can be subsumed for pay by someone else.

The Position of Women in Employment

The rate of employment of women in the Czech Lands during the period of communism rose, but not greatly: in 1948 the proportion of women as a percentage of the entire workforce was 36.5%, and in 1990 this proportion was 44.2%.

We therefore have a high rate of employment of women, the highest in Europe. This high rate of employment continues. Women have oriented themselves and continue to orient themselves towards traditional women's occupations in the area of internal trade (in 1990, 74.9% of those employed were women), insurance (67.8%), finance (81.0%), education (72.2%), health care (79.2%) and social work (88.8%). Unlike certain developed countries (such as USA) women in the Czech Republic are represented to a large extent in certain "prestige" professions, e.g. women compose 54.7% of all doctors. Women represent half of the overall number of those enrolled in secondary and higher technical and vocational education programmes. Men however advance in their professions faster even if they have the same education as women (this applies in particular to the sphere of business). Women are represented in management posts significantly less even in those fields in which women are the great majority such as education and health care.

A minimal number of women worked part time previously. In 1991, 12% of women has part time work and recent studies have shown that women would welcome the opportunity of part-time job and opportunity to work at home.

The Current Status of Women and Girls

The roots of social status of women today lie in their economic position and certain specifics of the former totalitarian system:

- The family budget is dependent on two salaries (man's and wife's);
- The employment structure takes full account of the female workforce in many sectors and fields;
- "Being employed" is fixed over generations into the values and value orientation of men and women (as well as mothers and daughters);
- A paradigm of the function of education has been accepted that as yet does not fully value the cultural and humanizing function, lays unbalanced stress on the work and qualificational use of education and imposes on women the need for employment over their entire life;
- Actual state family policy and its deformative effect on the life of the family, social contracts and relations, including the suppression of the role of the father.

The result is the "social status of women," in itself disputable since it reflects social conflicts and the schemes of social development.

Prospects of Women and Girls in Social and Economic Development

Sociological studies foresee a certain reduction in the rate of employment of women in this country and a rise in the amount of part time work, continuing differences in the pay of woman as well as fewer career opportunities, an ever greater orientation of women to their performance at work and higher female unemployment than there has been hitherto. The potential of exploitation of women in family companies can also be foreseen.

Currently 2.1 million women and girls work in the Czech Republic and this composes 44.4% of all employees in the national economy. The changes that have taken place since 1990 have reached an ever greater proportion of Czech society. They are the result of the restructuring processes in the macroeconomic sphere

Table 1 ***Number of students at the secondary technical and vocational schools, 1994***

	Boys	Girls		Total
	Number	Number	%	
Secondary technical schools	75,652	130,219	63.2%	205,871
Secondary apprentice schools	159,183	101,475	38.9%	260,658
Total	234,835	231,694	49.7% of the secondary population	466,529

and of the development of the private sector. While we are at the start of transformation of the professional structure, in the future greater changes are envisaged.

Traditionally women work in the fields of internal trade, insurance, finance, education, health care and social work. This trend is apparently persisting. Employment of women will affect and condition family cycles by its phases (for instance the birth and number of children).

After 1990 many women began to work as private entrepreneurs, in family business or to live on returned capital.

Current Trend on the Entry of Women and Girls to Technical and Vocational Education

At present in the Czech Republic there are 152 traditional branches of study (111 offered by secondary technical schools and 41 offered by secondary apprentice schools) and 162 apprenticeship branches offered by secondary education. These branches have been developed on the basis of school self-government and approved by the Ministry of Education. Most of these are designed for both boys and girls. Some of these professions however, taking account of their physical or psychological difficulty or the harmfulness of the working environment, are not suitable for women since their health or motherhood would be endangered. Therefore girls are not admitted into certain branches (there are approximately 80 of these) which are reserved entirely for boys. These branches are in particular fields in metallurgy, mining, building, water management, agriculture, forestry, craft production, chemical silicate technology and wood processing.

In health care however all branches are open to boys and girls, including the branch of paramedic, though the admission of girls is rare since the branch lays great demands on physical strength.

Only a few branches in textiles and clothes-making are reserved for women and girls: machine embroiderers for industrial production, machine embroiderers for production to order, seamstresses for clothing and linen and for technical clothing.

Measures for Equal Access of Girls and Women to Technical and Vocational Education

Girls for the most part are oriented towards non-technical branches. They work in particular in services of all types. They show great interest in military and police education.

In the area of education in gymnasia, girls appear markedly more than boys. In 1989/90 they composed 60% of pupils in these schools. In the secondary technical schools the proportion of girls in the same year (1989/90) was 58.8% In higher education they were 45% of students in 1989/90.

Before 1990, the regulatory measures for the qualification of all young people for entry into the higher stage of secondary and post-secondary education affected the educational aspirations of women and girls. Girls for the most part were interested in and took "feminized fields" (they applied in particular to study at business academies and secondary health care schools). They often did not get into these on account of the high level of interest and so had to study in another branch, such as a technical one. Today two thirds of graduates of technical branches do work that is completely different from the work they had been prepared for. They therefore have less chance of finding their place in the labour market.

In the period after November 1989, efforts were redoubled to increase the opportunities for girls to gain entry to higher secondary education. Family schools were established in 1991 for this reason. At present there are approximately 200 of these schools run by the state or churches or private donors. These schools were conceived as graded: girls could end their education after the 2nd or 3rd year. After ending the 4th year by a final exam they gained full secondary education and a Maturity (school leaving certificate) award. The core of the curriculum is composed of subjects aimed at family life and as a result graduates are able to finish their studies in a shortened period for certain manual occupations (e.g. cook, seamstress, etc.). Girls also gain abilities for work in administration (typewriting, computers). The three-year branch of study, operation of services, at secondary technical schools in which girls also predominate is conceived similarly to studies at a family school.

Statistical data from labour offices has shown that graduates of family schools have difficulty finding work in the labour market. Therefore from September 1995 the transformation of family schools will be started. Family schools will become four year programme providing full secondary technical and vocational education. In a four-year family school girls, aside from preparation for family life, will receive technical and vocational education for work in social services, administration and civil service or local government.

The situation of women in the Czech Republic is naturally not ideal. Problems in this area are often different from those in the West. One can say however that neither girls, nor parents nor the public feel that the access of girls to technical and vocational education as a problem that requires to be resolved, as a matter of priority and from its foundations.

Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Germany

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Introduction

Regarding the situation of women in Germany today, the Federal Republic of Germany's (FRG) 1990 unification with the former German Democratic Republic (GDR), leads to some general reflections about each of the two countries differences, forty years old post-Second World War traditions. Furthermore some of the main differences between the two systems of vocational education are in need of a short explanation.

Women of the GDR had realized many of the goals, women of the old Federal Republic of Germany were and are still struggling for:

Due to a chronic shortage of manpower, the GDR strongly promoted and supported the participation of women in the labour force. Approximately 90% of the adult women were in the working force, including mothers and married women. The provision of child-care, free meals at school for children and other measures for older children during their free time and during their school holiday allowed even women with families to work full-time. The former GDR had by far the world wide highest rate of economically active women.

According to data issued by the former GDR government, only 13% of all women between the age of 18 and 45 did not have a vocational or academic post-secondary education, generally completed by an acknowledged test. Therefore, in the GDR more women than anywhere else graduated either from college, university or from the vocational education system.

Compared to 8-10% in the FRG, in the former GDR more than 25% of women were trained in traditional male dominated occupations, including manufacturing, agriculture, coal mining and construction. Again, the proportion of women in technical and other non traditional occupations was considerably higher than in any other industrialized country.

Some differences to the official data of the former GDR were revealed empirical studies done some weeks prior to the date of the German unification on october 4, 1990. Every third women had gone through more than one apprenticeship programme, therefore many were holding two and sometimes three certificates. Some doubt had raised about the claimed 90% rate of women's participation the labor market. Since many women had stayed home for a year after their children were born, others were out of their jobs to participate at one of the many possible adult education and training programmes. Besides those and some other minor inconsistencies between the official and the empirical data, the overall situation of women in the former GDR had been economically and socially much more active than the one of women in the Federal Republic of Germany.

Before the German unification, women in the Federal Republic of Germany looked back on a forty year struggle for equal rights. The German constitution of 1949 prohibits any kind of discrimination, including discrimination of gender. It took, however another

30 years and some pressure by other countries of the European Community, before the German parliament ratified in 1980 the United Nations Convention on the Elimination of All Forms Of Discrimination Against Women, making discrimination between men and women on the grounds of sex unlawful in employment, training and education.

At the beginning of 1970's, the rate of female school graduates optioning for in-company vocational education in the German dual system rose considerably. Today, 70% of women in the labor force have successfully attended a three year in-company apprenticeship. In 1970, only 38% received vocational education within the dual system, named by its two locations of vocational training, the private company and the state run vocational school.

Factors Determining the Orientation of Girls and Women towards Technical and Vocational Education: Economical, Sociological, Technological and Employment Related Trends and Traditions

Interdependency of Economic and Social Development

In Germany as much as in most other European countries, economic affluence and social development are closely related to and dependent on each other. The post Second World War development of the German economy started off on the basis of social partnership, giving the unions a strong place within the market economy.

Germany has been constructed as a "Welfare State" with free education, socialized medicine, housing, child-care and unemployment aid as well as social security for the retired. The "Women's Question" however has been raised only lately, during the eighties, in response to the increase in female labor force participation.

The position of women in society and in the labor market had been strongly influenced by paternalistic tradition. Frequently, the normal biography of women showed her life centered around the family, often lacking adequate job skills necessary to be competitive on the labor market. Close to two thirds of adult women stayed at home after getting married and child birth for at least six years, many of them, however, for the rest of their lives.

To have his wife stay home and be the single provider of a family, had been the traditional ideal of the German male. Up until the late 1960's taking care of her husband and the children was expected of the majority of girls. This ideal of gender specific roles and family patterns got its first bruises during the early seventies, when the women's emancipation movement became more and more public with such causes as education for girls, the right for women to decide for themselves whether they wanted to be pregnant or not, and some years later about violence in the family. Supportive actions for girls and women were brought about by basic school reforms and finally, in 1977 by the reform of Family and Marriage Law, abolishing many discriminatory regulations against married women. One curiosity of the old Family and Marriage Law had been, that women were not allowed to sign contracts, including work contracts, without the advocacy and consent of their husbands.

The transformation from a paternalistic, male dominated society to one where women and men receive equal chances has not been completed. Increased involvement by women in decision-making positions in relevant organizations and institutions and in politics supported by positive actions, Women's Ministries, equality councils and equality commissioners hopefully presupposes the development of further progress.

The Dual System of Vocational Education: Backbone of Germany's Economy

In terms of vocational education, women in Germany are looking back on a relatively short history of their own participation. Considering that the German vocational training system has its roots in medieval central Europe, it is traditionally one of the most important tracks of the educational systems. Due to a lack of natural resources, the highly skilled worker had been the mayor source of Germany's economic success. In comparison to most other socialist countries, the former GDR also had been one of the most productive countries. Since both countries' vocational education basically came from the same roots of in-company training, the unification Contract of 1990 proclaimed the dual system of the western FRG for the united Germany. The dual system is a combination of education and training at a part time vocational school, generally one day per week and work site training in a company on the basis of an individual three year training contract between the apprentice and the company. Approximately 65% of school graduates enter the dual system, 41% of them are girls.

The high enrolment of girls in the vocational system do not mean, however, that boys attend the same vocational training programmes girls attend. The rate of male and female apprentices is only similar in clerical occupations as banking, and in wholesale. Just 6-8% of all metal, electronic and crwideafts related vocational education programmes are attended by girls. Young women occupy the majority of all vocational training places in retail and in public and private clerical offices.

The picture of vocational training reflects very much the overall situation of women at work. Wherever women work to a large extent, men are generally only found as supervisors, owners or heads of departments. Even in the few technical occupations held by women, they work mainly around other women. Areas where men dominate the field, women are rarely either willing or allowed to join. The gender segregated labor market has not changed very much during the last ten or even twenty years, unfortunately not even by the good example of the ubiquitously trained women in East Germany. After the German unification many companies on the territory of the former GDR were forced to close. The modernization of the economy will take much longer than expected and some regions, towns and cities formerly depend on just a few companies or single sector business, are facing unemployment rates of more than 20%. Unnecessary to mention, that women are hit harder than the more mobile men, who often travel to another state for work.

Orientation and Requirements related to Technological Change

The present situation of girls and women in Germany is still disadvantaged, especially in regard of their chances to be hired for a technical vocational apprenticeship or a work place. Whether this situation will change in the near future is highly unpredictable. Presently, Germany faces the greatest problems in its most acknowledged technical manufacturing areas with the result of thousands of work places being lost or threatened. Initiatives to promote women especially in technical vocational fields might fail because of a general lack of work opportunities.

The German skills development system is build on regulations that were first issued in the 1930's and on an existing system that has been partly in place since the mid-nineteenth century. In 1969 the Vocational Training Act created a legal framework for the Dual System. School graduates who are not going on to college or university—approximately 65%—become apprentices in one of 320 trades and occupations offered within the Vocational Training Act of 1969. An apprentice spends four days at a work site training place and attends state run vocational school one day each week. The average vocational education in the dual system takes three years.

Companies are not compelled to offer apprenticeships, but virtually all major companies and half of all craft firms and medium size businesses do so. Those companies who do are not compensated for their substantial costs. They have to compensate the apprentice, they have to obey several regulations, for instance pertaining to the training of staff involved in the vocational education, and if necessary, they have to supply the apprentice with work clothes. The work site training of three years has to be guided by a master of the trade. The school graduate seeks out an employer willing to enter into the three year apprenticeship contract. At the end of the contract period, the apprentice will take a written and a verbal examination and there will be a careful review of selected work samples. Apprentices who pass the final test are awarded a certificate honored by employers all over Germany and in most countries of the EC.

Companies who invest in human resource development by offering vocational education will sometimes not hire female apprentices in fear of possible pregnancies of the girls. Some take this and other implicitly discriminatory arguments to avoid integration of women in male dominated areas.

The direct involvement of the social partners, the unions and the employers, in the design of the training regulations and skill standards for each one of the 320 occupations assures that apprentices have been trained to standards that reflect real work place requirements. The standards are in general constructed under "neutral" aspects, not taking into consideration, that women would need different or additional requirements.

To apply for vocational education in the dual system, graduation of a ten year middle school is considered sufficient. To enter university, thirteen years are necessary. Female school graduates in Germany generally show higher and better graduation tests than male students but just 43% of all apprentices in Germany are girls.

There are also school bound possibilities for vocational education, some of them preferably attended by girls. Other than vocational training in the dual system, where the apprentices receive a small salary, most full time vocational schools will charge a fee for tuition. Unnecessary to mention, that girls who attend vocational full time schools are financially disadvantaged in comparison to an apprentice in the dual system.

Training demands are not exclusive province of either female or male dominated occupational categories. But what women and men are trained for and where they receive their training is quite different.

Under the umbrella of Federal law, the Vocational Training Act of 1969 and of regulated skill standards for each of the 320 acknowledged occupations, a sometimes discriminatory, gender selective system prevails. Long-term psychological and social developments as well as the actual political and economic situation are accountable for some conditions of the present situation.

Most young people in Germany will not enter employment right after graduating from either a ten year middle school or a thirteen year high school (for the less gifted children, there is the possibility of leaving compulsory school after 9 years), but will engage either in academic or vocational education.

The rising educational attainment of the labor force in Germany and, in particular, women's increasing share of university and vocational education degrees, sometimes obscures the fact that the vocational education needs of women will place the greatest future claim on training resources.

Structural Changes of the Labor Market

Germany, as most other industrialized nations, is confronted by a new "Global Economy" with its changing markets and new competitors. Especially in areas where Germany had been one of the leading countries, in high technology, machine and automobile production, the highest losses in work places are taking place or are expected for the near future. While Germany is restructuring its economy, less school graduates will find the opportunity of a place within the dual system. Contrary to earlier times, the rate of highly respected and, supported by the strong Metal Workers Union highly paid skilled metal workers and technicians might gradually loose their dominant position on the German labor market.

The latest predictions about the expected movement of the labor market clearly state, that steel and metal production will reduce its labor force considerably. Since women have never participated in those fields of production, the losses will have no direct influence on their occupational situation. The economic slow down in those highly skilled, blue collar industries might add, however, to the existing difficulty of placing girls and women in non-traditional vocational training.

Another serious danger might occur at a more general level. While many men are loosing their traditional occupational areas, male school graduates will not follow their fathers paths and instead will look for opportunities across the "gender line." Statistics indicate, that during the past ten years, many young men have turned to the service sector, leaving the traditional orientation on manufacturing for banking and other highly skilled office jobs. Only if there are sufficient jobs available in the economy, and if the private sector can generate more skilled high-tech slots, than women will be able to obtain greater skill opportunities in the technical fields as well. But in areas of high unemployment or in areas suffering a decline in the manufacturing sector, little skill advancement of women should be expected.

As shortly mentioned before, women in Germany are still confronted with a set of expectations about their role in the family, at work, in politics and in society, which have strong traditional ties to the ideal of a home maker and mother. Only very recently and regardless of their martial status and their age women have started to participate in the labor market as professionals. One potential consequence of improved technology is its effect on the structure of existing jobs and its creation of new ones, thus further altering the traditional position of women. Associated with the technological developments during the last two decades in western industrialized nations, was the growth of office work and the increase of white collar position, particularly for women. Other white collar positions, however, are technical or specialized, others are administrative or managerial. Altogether, white collar work outnumbered blue collar or production work. Consequently, some changes in the social setting of highly industrialized Germany has occurred by this general change of economic development. During the post war period, the German skilled and specialized blue collar worker had been the "aristocrat" of the working population. Only professionals, like doctors, lawyers, architects or technical and managerial professionals achieved a higher income or salary, while office administrative and occupations in the retail businesses offered lower wages and were less prestigious on the social ladder. This situation gradually changes, especially since new jobs emerged in offices. Because of the visible and expected decline of the workforce in manufacturing by new technology, especially by automation, sociologists fear that the productive sector will continue on a higher level than presently, offering stable work-places mainly for highly skilled and specialized workers with a strong will for upgrading and lifelong learning. The tertiary branch of the economy, trade, transportation, communication and personal and professional services will also require skills beyond the semi-skilled level, leaving people without the requested skills without opportunities for a stable working life.

These expectations which sociologists have explained in course of analysis of post-modern society, generally do not account for the differences between women's and men's biological and social differences. Biologicaly, women are the one who bear and nurse the children, socially they are made responsible for the care of children.

As in many other western European countries, women in Germany are 25 years and older before having their first child. Women with young children, if they will continue to work, generally will do so on a part time basis. The distribution of work might request for the future, that more men will reduce their working time. Until today, however, 96% of all part time workers are women. The full time worker has a distinct advantage over the part time worker not only by income, but in career planning as well. Most women work part time during an age where the men improve their knowledge and skills and strive for better positions and higher pay.

The part time working women have their "second job" at home, taking care of the children, organizing the social life and last but not least taking care of the reproduction of their husbands. Initiatives by some big companies to offer part time female workers additional training to enrich their working skills, have failed their intentions, mainly because most of the part time working women could or would not be able to add further learning activities to their daily schedule.

On return to a full time job, most women continue their career at the average age of 30 at the same point where they have been before they retreated to family obligations. Less advantaged positions expect most of the women who interrupted their active working life to take full time care of the family.

One of the reasons for women in Germany not choosing male dominated occupations has to be seen in their expectations of becoming mothers and than not being able to reduce their work time into part time positions. Clerical and sales occupations are, by present standards, generally open to all types of time splitting. The sectoral distribution of part time work will prevent women to enter the highly skilled, technical world of work.

Present Measures to Promote the Equal Access of Girls and Women to Technical and Vocational Education

While vocational education in general does not seem to be of any problem, girls and women resent to expand their options to technical vocational education without some additional motivation either by their parents, by their teachers and by companies engaged in technical training.

Several Federal funded programmes in the past and present are especially directed to promote women's participation in technical vocational education:

- "Social-marketing," to initiate engagement of small and medium sized firms, to hire girls for technical vocational training;
- "Girls plan their future," introduction of technical occupations to female middle and high-school graduates;

- "Women and Technic," information, counseling and support of girls and women to further their technical orientation;

- "Motivation of girls," assistance of school graduates in their search of non-traditional vocational training.

Those and many other small Federal government funded, additional programmes generally begin with classes or individual application and search techniques and then place participants in group settings where they make "cold" applications to prospective employers. Many of those programmes have shown some minor effects on the training companies as well, rising their activities towards hiring more girls than before.

A short note by the author: I have guided and accompanied several programmes funded by the Federal government to train women in non-traditional, male dominated occupations. My research findings during and after the programmes clearly indicate that the cultural gap between women (as apprentices) and men (as trainers and as colleagues) seems to be the main work organization and climate the other reason for women's difficulties. Behavior, use of language, sexism etc. discouraged many of the women who otherwise liked the technical work.

Innovative Practices, Including Pilot Projects in Technical and Vocational Education at Institutional Level

While only a minority of each years' female school-graduates resent further, post-secondary education, the majority is looking and applying for a vocational training opening in the dual system. Innovations, however, are necessary in areas traditionally dominated by men and under a different aspect where women's skills can be increased for later advancements. Significant progress is expected within women's traditional occupations.

The strong federal legislative mandate in the Vocational Training Act of 1969 may not be sufficient to provide the opportunities young women need to obtain vocational education for non-traditional occupations, but it is imperative that such legislation remain in place. But nothing would have probably changed, in terms of vocational education opportunities for women, without the passing of additional federal acts aimed at overcoming sex discrimination, bias and stereotyping. Federal funding will continue for implementation of the sex equity provisions in vocational education. The federal funds as small as they are in comparison to other economic funds, are especially important for the "Länder" and for small and medium sized companies that do not have the financial base to generate the funds needed for innovative efforts.

Some of the most realistic avenues of advancement for women lies in the access to higher skilled jobs within their traditional occupations as well as the development of career ladders within the emerging office technology area.

In Germany, each one of the 320 occupations defined for vocational training is outlined by contents, duration and final test. Employers and Trade Unions negotiate on profiles, examination requirements and on the contents of the training programmes before they are released by Federal Government as training regulations. Over the past fifteen years, changes in technology, economy and society have brought about several changes and restructuring of many of the occupations mainly held by women. None of the social partners involved in the process of re-designing and upgrading the training issues of women-dominated occupations has been considerate of the situation of women. Research findings and surveys indicate, that the following measures are necessary to offer the basics for equal chances for women in vocational education:

- Part-time vocational training for young mothers;
- Additional training activities in the field of new office technology;
- Child-support and social-pedagogic counseling for mothers in vocational education;
- Additional female trainers and teachers.

In lack of these special measures, some women drop out programmes or, at the worst, do not even apply for participation. Small and project bound federal funding supports activities as named above.

On the state level, important positive action programmes have been initiated, most of these apply for the public sector only. Mainly, they require to advertise all occupational slots to women and men alike and that vocational education opportunities shall be allocated to women in areas where women are under represented.

Efforts to Provide Employment Opportunities in Both Public and Private Sectors

The most important goals of labor market activities for women is the provision of marketable skills. Every data highlightens the fact, that office work, both in the public and in the private sector, constitutes the largest single area of women's occupation. In Germany, roughly one third of the female labor market population is engaged in office work and they make about 85% of the clerical workers. The number and type of office jobs are changing rapidly and traditional skill-based training can no longer be used to fill the gaps. The factors of change fall on the shoulders of mature women, who were trained and who were working under different requirements and now have to adapt to the changes by new office technologies.

The new skills necessary include more than simply using a computer. Most of the training programmes for unemployed women commonly focus on women's skills as a quantifiable or technical qualification. This is especially true for women's main domain of work, the office. Most office work requires and includes abstract thinking and a great deal of communication and interaction. Those "invisible skills" are not counted or noticed unless they are missing. Communication and interaction were and are the main incentives of new curricula and training methods for women. During the eighties and later, after the German unification, directed at women in east Germany, many programmes were designed to give office workers new technical skills. Sponsored by the Ministry of Education, many special programmes were developed who moved beyond the normal range and created a wide variety of flexible concepts. They aimed at a broader understanding of an organization as a system by integrating the specific technical course with corresponding courses in organizational behavior and written and oral communication. Many of those courses of extended computer technology, office communication, decision making etc. included also career explorations and development, and the focus on the transferability of skills. Hundreds of those courses were offered by women project managers and teachers with considerable success for most of the participants. While many graduates of these courses were reentering the labor market as word processors, others moved from typist or secretary to office manager. A small percentage, however, moved on and became self-employed as software developers or opened up a service office on their own.

The public sector in Germany has pioneered the provision of work places for women, especially under the aspect of flexible working time arrangements. The public sectors incentives to hire women at large scale has been dictated mainly by labor market reasons. At the beginning of the 1970's, when labor was scarce, governments offered voluntary reductions in working time to make public service jobs more attractive to women. Together with the general expansion of public sector employment, women profited from these policies. But there are indications, too, that the wage structure of public service, at least at the lower and medium level where most women are to be found working, is considerably lower than in the private sector.

When unemployment rose during the 1980's, governments modified their objectives and mainly only offered temporary work. Presently, equal opportunity objectives coincide with rising concerns about wide range implementations of office technology and the so called "lean administration," both feared to reduce the public sector's work force. Other measures are politically discussed, like reducing several of the compensations and benefits within the public service, like employment security, and to hand over certain areas of the public sector to private enterprises. The possible deterioration of the public sector brings increasing concern about the future of a large area of women's working places.

While Germany is in the middle of structural changes, public job creation is one of the major strategies against unemployment. Most activities to further the employment situation of women and men are regulated by the Employment Support Act of 1969. This Act enables workers with previous employment to receive compensation for further training and support in job placements.

Women constitute about half of those eligible for further training and re-training programs sponsored by the labor office under the Employment Support Act. At the same time women have become a more important constituency of training programmes. The Federal government's responsibility for occupational development for women has expanded to such activities as temporary financial aid to women who want to become self-employed or who want to open their own business. Generally, those activities are viewed very critical. Most women who intend to become either self-employed or a business person, have to start virtually "with nothing." There are, however, some single state and a couple of Federal government funded programmes to instruct future self-employed and business women about the requirements of running a business successful. Additionally, some of the states offer liabilities for women who have to borrow money to start their own business.

Difficulties and Constraints Encountered in the Implementation of the Above Measures and Policies and Strategies Developed to Overcome Them

Publicly and politically women's presence has risen considerably during the last decade and has enforced more attention to the "Women's Question" than ever before in Germany. Most young female school-graduates, supported by their families, will continue one way or the other their post-secondary education. Today, 70% of women on the labor market are according to the German dual system skilled workers.

All positive developments, the minor and major supportive actions and funding, the high unemployment rate especially in east Germany has been in some regions disastrous to women's labor market situation. The impact of most labor market supportive programmes for women just seem to shift the problem from one social group of women to another. Women in Germany wanting to maintain their previously established economic independence will not retreat from the labor market. Laws prohibiting open discrimination in terms of recruitment, pay and promotion will support women's further participation on the labor market as much as women's own ambitions for educational participation.

New forms of work distribution between the different actors on the labor market will be the challenge of the future to assure progress in equal opportunities.

Future Strategies and Plans

Many of the skills actually required are not reflected in current definitions and occupational descriptions. Especially adult women have informally acquired skills which are ignored and undervalued. The development of some of these competencies, particularly people orientated skills, gain importance in the world of work. The status of many "typical" female occupations could be upgraded by official recognition of these competencies. In Germany, the social partners are requested to revise training regulations accordingly. Another crucial factor lies in the limitations women experience by entering non-traditional vocational education. Desegregating broad occupational categories would reveal paths for inter-occupational mobility for women who are willing to cross the occupational gender line.

Since women form the vast majority of part-time workers, alternatives to the traditional employment model have to be supported financially and by new legal regulations.

To expand women's employment options, non-standard sectors like self-employment and cooperatives should be included in protective labor regulations, social security and health insurance.

Educational and labor market interventions alone are not sufficient to achieve equality. In addition, domestic responsibilities, especially the care for and education of children of all ages has to be shared collectively.

Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Sweden

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Introduction

In formal terms, women have had the same rights as men in Sweden. This has meant that girls and women in Sweden have had the same access to all education as boys and men. In practice, however, both the education system and the labour market have been strongly segregated. Men dominate in the technical vocations/professions and women dominate in the health care vocations. Even though the percentage of women working is high (81% in 1993), only 3% of this group works in technical vocations.

Over the last 25 years, intensive efforts have been made to achieve equality. The ambition has been to interest girls in technical, scientific educational and vocational choices, and to interest boys in the health care sector. Most of these efforts have been directed toward the girls and their choices. Girls have been defined as "the problem" and boys have usually been forgotten. Actually the problem is much more complicated than this. The problem is not only to interest girls in technical opporunities but also to make the spheres that girls are most interested in and most competent in more visible and more valuable.

Job opportunities in the public sector and administration are decreasing, which affects the traditional labour market for women. In parallel with this process, society and the labour market are undergoing a "technification." As the traditional labour market for women diminishes, women must be given the chance to broaden their competence and to see technical vocations as a positive choice.

During the 1980s, Swedish industry needed more technically competent personnel. Girls were considered a talented reserve. Throughout the entire country different types of information campaigns were carried out. In the individual schools much was accomplished to influence the girls in their attitude toward technical fields. Through activities such as "open houses" at the middle and secondary school level, in which girls informed girls, results were obtained that showed that up to 45% of the girls chose natural science studies or technically-oriented studies.

Schools and government employment service agencies have done much throughout the country. Intensive work to change conventional attitudes has been pursued, but it has not been enough. In order to really change conventional attitudes, the work must begin at an earlier age, with young children. At the pre-school level, children must have the opportunity to form a meaningful contact with technology.

The purpose of this Discussion Paper is to describe the access that girls and women have to technical and vocational education and jobs in Sweden today. In addition, this Paper will describe to what extent girls and women have equal access as boys and men to this education. The Paper will also try to answer the question: What does Swedish society do to facilitate recruitment of women/girls to technical vocational education and careers?

The Status of Women in the Social Structure of Sweden

Sweden is well-known internationally for its efforts, based on both government and private initiatives, to achieve equality between men and women. Sweden has come very far in realizing this goal, however, there is much left to do before the goal of equality between men and women is achieved.

De jure equality between the sexes has existed in Sweden for a long time, and even *de facto* equality exists to a significant degree. Reforms in general concerning economic, social and family policy have greatly enhanced women's position and opportunities in Swedish society. One government reform, that of separate income taxation, along with women's increasing presence in the labour market, can be considered to be a major factor advances made toward equality.

In the last 10 years, from 1985-1995, government policy has more and more reflected the growing political consensus that equality between men and women is a major issue requiring clear government policy. Equal opportunity for women and men has been the subject of three Government Bills, in 1988, 1991, and 1994.

The major objectives of the 1994 are as follows:

- Equal distribution of influence and power;
- Equal opportunities to attain economic independence;
- Equal terms in all aspects of the labour market, in both private or public enterprise;
- Equal opportunities for personal development at work;
- Equal access to education;
- Equal responsibilities in sharing the work at home and in

the care of children;

- Equal rights to physical integrity—the freedom from gender related violence.

Especially over the last 10 years, the number of women in political office has increased, in the national Parliament, in the regional County offices and in local Municipal offices. Today, 41.3% of the Members of the Swedish Parliament are women. School administration has also seen an increase in the number women officials as women move out of the traditional school teacher ranks to join the school policy makers.

On the positive side, when the labour market is viewed over the past 30 years, one of the most important changes has been that of the increase of women in the labour market. Women are an important supply-side factor in the labour market and have, through government policy and general changes in social attitudes, strengthened their hold on the labour market. The further development and expansion of child-care facilities together with reforms in parental insurance and health insurance has enabled even young mothers to retain their standing in the labour market, making it possible for employers to confidently employ young women and consider them as a resource. An interesting statistic is that 81% of all women work, and, at the same time, Sweden has one of the highest fertility rates in Western Europe (2.1 children per woman).

On the negative side, although many Swedish men are participating more and more in the daily chores of home and family, it is still the women who have the largest share of the responsibility for home and children, which means that many women work part-time and not full-time. The unemployment rate for Swedish women may be low in comparison to other European countries.

Working conditions have improved for women but, despite this, there is still extensive segregation of job tasks and job access in the labour market. Women still mostly work in non-decision-making jobs, mainly in the public sector, and take home a lower average pay. Furthermore, women have poorer access to qualified jobs. There is still room for improvement in the conditions for women in the labour market.

The core of the question of equality between men and women seems to be the unequal power balance between men and women both in social institutions and in personal relationships. Social and personal structures that encourage domination by men and subordination of women must be revealed and re-structured. This cannot be done single-handedly by women working with women. Men must also be involved in the efforts to achieve equality. Only then can *de facto* equality match *de jure* equality.

Apart from innovative policies in the labour market, one of the single most powerful institutions that can be used as a tool to introduce and implement all aspects of equality between men and women is the school system.

The Swedish School System

Again, from an international perspective regarding educational policy, Sweden is still far ahead when it comes to equality between men and women. Swedish school policy clearly promotes equality. For almost 23 years, an active campaign for equality has been pursued in the Swedish school system. Despite this lengthy period of efforts for equality there is still much to be accomplished in this field. Research has shown this to be true. It is still true in 1995 that the individual student's qualifications and conditions, performance and results are influenced to a great degree by whether the student is a boy or a girl.

Schooling for young people in Sweden consists of a 9-year compulsory school and voluntary upper secondary school. Compulsory schooling is divided into three levels, each of which comprises three grades, lower, middle and secondary school. Compulsory school age for children is 7-15 years old. All pupils take the same subjects, with different degrees of difficulty in English and maths at the secondary school level.

Upper secondary school in Sweden is in a state of transition at this time (1995), due to the first major school reform in over 20 years for the voluntary school forms. The reform was first introduced in 1992. According to the new reform, all the various educational "lines" that could be studied have been re-organized and modernized into 16 national programmes, with the additional possibility of creating individual tailor-made programmes. Every programme, including the individual programmes, is now three years in length. One of the reasons for the reform was to upgrade the technical vocational programmes.

In the active work for equality, the school system works to provide each boy and girl with the same opportunities to develop without limitations of gender. The majority of the efforts at schools have been oriented towards changing and influencing attitudes, aimed at those situations in which gender differences have been most blatant, i.e., when pupils choose electives, education programmes, and vocations/professions. Most of these efforts have been directed toward girls and their choices. Thus, girls have been defined as having equality problems, and boys have been mostly forgotten. The main thrust has been in the past to get girls to choose technology and boys to choose nursing and associated health care professions. But the problem is much more complicated than that. It is also a question of upgrading traditionally female knowledge and interests and making these more "visible," while at the same time, finding a way to get males to stop and listen and dare to show their own feelings.

Equality in the schools has been defined as an information problem. The measure of equality has been an equal number of each gender in each educational programme and branch. The projects and campaigns that have been carried out in the schools have often been of a temporary nature and isolated events in the school's development work and activities. Unfortunately, these have not resulted in any lasting changes.

Choices in the Upper Secondary School

According to statistics issued by the National Swedish Statistics in 1992, it is apparent that only 3 of the 16 upper secondary school educational programmes have an equal distribution (between 40 and 60%) of boys and girls. These three are: Business and Administration, Food and Natural Resources.

Seven of the remaining programmes are dominated by girls: Children and Recreation, Arts, Hotel and Catering, Handicraft, Media, Health Care and Nursing and Social Science.

Finally six programmes are dominated by boys: Building and Construction, Electrical Engineering, Energy, Vehicle, Industry and Science and Technology.

Research has shown that a necessary pre-requisite to achieve a more equal distribution of sexes on the labour market is that girls who do make non-traditional education and career choices must receive extensive support both at school and in work life. The results for these girls are of substantial importance for the next set of girls who must make their choices.

About 25% of the 900 girls who choose a "boy's" vocation drop out of their educational programme during the first year. Approximately 500 girls in the whole country complete their technical education. These girls then face difficulties when searching for jobs in their chosen vocation irrespective of whether there an economic recession or economic recovery prevails on the labour market.

The career adviser of a Swedish upper secondary school with approximately 1,600 students has expressed a certain weariness of campaigns and projects. She does not think these result in any lasting changes. The upper secondary school where she works offers the modern science and technical programmes, and has carried out all the usual projects. The school has arranged "open houses" for girls and summer courses in technology for girls; it has sent school staff to inform classes in the middle schools, and has received younger pupils on study visits to the school workshops and laboratories. In the first-year natural science classes where boys and girls from all technical and technical vocational programmes study together, there are just as many girls as boys. The girls receive an excellent general technical education, but there are very few girls who continue in any technical or technical vocational education programme. Girls who have chosen a technical vocational education in the upper secondary school have done this in order to obtain good practical training. They have been aware from an early age that they have not been interested in the traditional girls' vocational choices. On the other hand, girls who have chosen the theoretical technical education programmes have made that choice because they want a good foundation for further advanced education. For most girls, their choice has been made on carefully considered, well-balanced grounds.

Today, research also shows that training for vocational teachers in the basics of the special aspects of women's communication and pedagogy would be very useful. Moreover, there is a serious lack of technical/vocational teachers who are women. This group of women technical/vocational teachers could then serve as valuable role-models for both the girls and the boys. In this way both sexes could see that women have the competence not only to work in a technical vocational field but also to teach in it.

According to the 1990 report "Ideas and Role-Models" (Idéer och Forebilder) issued by the Ministry of Public Administration, seven women are certified vocational teachers in traditionally male areas: one teacher for future floor-layers, one for painters, three for production technicians, and two for control technology. On the other hand, there are only a handful of male teachers in the Institutional Housekeeping courses.

There are only male teachers in the following educational courses: building and construction, tin smithing, carpentry, street/road/sewage, masonry, heat and sanitation, office machine repair, telephone installation and repair, auto mechanic, aircraft mechanic, machine mechanic, spare parts, structural materials, metallurgy, boat building, workshop carpentry, sheet metal and welding mechanic and workshop mechanic.

Often, the girls who have chosen non-traditional upper secondary school educational programmes, also have higher average marks and ambitions than their classmates. Research has shown that men with only an upper secondary school certificate or less have a hard time accepting the fact that there are intelligent and ambitious girls in their vocational sphere. When these girls visit the labour exchange agency, it is important that the job advisor they have as their contact reserves extra time to be able to help them properly.

Girls who, after graduation from upper secondary school, start working in another area other than their chosen technical vocation show a tendency to remain in that first non-technical job, and become less and less confident about their initial technical choice.

Women and the Labour Market

Job opportunities in the public sector and in administration are decreasing, which affects the labour market for women. In parallel with this development, society in general is undergoing a revolution of "technification." Since the traditional labour market for women is decreasing it is important that women are given the chance to broaden their competence and to see work with technical tasks as a vocational option. In the last twenty years many activities have been initiated to interest women in technology, but the proportion of women is still low in the technical vocations (3%). Men work in certain vocations/professions and women in other. Only 5 vocational groups of 52 show an equal distribution of men and women. The other 47 groups represent a complicated labour market problem with no easy solutions.

If Swedish society is to change this situation, a new approach is necessary. Women must have the opportunity to emphasize their specific knowledge, experience and abilities in order to discover new areas and inventions that can be developed.

During the 1980s when the demand for technical personnel was great, the government employment exchanges initiated campaigns to reach out to women. Among other things, the Ministry of Labour arranged the campaign "More Women in Industry." This campaign was implemented in both the school system and the network of employment exchanges.

Scandinavian "Break" Project

A joint project for the Scandinavian countries was launched in 1985 called The Scandinavia "Break" Project. The Project continued for four years. The goal of the Project was to expand and improve education and job opportunities for women. The Project included initiatives for pilot activities in selected regions in the Nordic countries (Denmark, Norway, Sweden, Finland and Iceland). Among other things, this lead to the production of facts, idea material and exhibitions, as well as seminars on technology for primary, middle, and upper secondary school teachers, and summer school courses in technology for girls. One of the basic principles of the Project was to persuade girls to make non-traditional career choices in order to get into the traditional male labour market. The basis of the Project was that girls had to dare to choose in a non-traditional way.

The results of the Project were that more girls applied to technical education programmes. During the period up to 1987, the proportion of girls in university engineering programmes increased from 11 to 23%. However, when the Project was reduced, the number of women in the technological programmes also decreased. By 1991 the figure had sunk to 19% in the university engineering programmes. In addition, an alarming number of girls dropped out of the technological programmes and changed to more traditional programmes, both at the university level and in the upper secondary schools.

Furthermore, employers found it difficult to change their way of traditional thinking regarding the employment of women in technical branches. If a girl did get an industrial job, the usual reaction was that her competence was questioned. Could she lift as much as the "guys"? Could she handle the machines? Could she think in "technical" ways? The consequences were that, in the beginning, women tried to live up to all these expectations, and then choked from over-exertion, and finally applied to other types of job.

Methods in Different Regions in Sweden for Supporting Girls in Their Relation to Technology

In Soderhamn, efforts have mainly been directed at teachers as the key group for realizing change. When the teachers there had received deeper knowledge and increased awareness, they began to change their methods of teaching.

In Uddevalla, the technical teachers have been working as resource teachers in the primary and middle schools, as well as in pre-school groups.

In Akalla, supplemental training is offered, in the organisation and planning of the instruction during the lessons. In addition, segregated classes, boys in one and girls in another, has been tried in different subjects.

A teacher trainer has developed a differentiated methodology for girls and boys. By understanding and taking advantage of the differences experience and values between boys and girls, schools can support and highlight both boys and girls in the classroom.

The House of Technology

In Lulea in northern Sweden, the House of Technology was opened in 1988. It is operated as a non-profit foundation, with support from both large and small companies, all the municipalities of Norrbotten Province, and the Lulea Institute of Technology at the University of Lulea. The House itself is situated right next to the Lulea Teacher Training College. For the teacher trainees, this greatly facilitates learning about technology and how technology fits into society.

The purpose of the House of Technology is to make technology understandable, based on the different areas of technology that belong to everyday life in Norrbotten, and to provide both adults and children with a feeling of completeness and coherence concerning technology. The House strives to create the opportunity for both children and youth to have an understanding for and insight into the role and importance of technology in the society of today and the future. The founders of the House of Technology want to increase the interest in technology on the part of children and adults (girls and women!).

The House encourages children and youth to actively seek knowledge in scientific and technological fields. The House is regularly visited by day-care groups of pre-school children and groups from after-school centres. Study visits to the House of Technology are an obvious ingredient when children in the primary and middle grades work with any theme that has to do with technology or the environment.

The House of Technology strives also to stimulate women's knowledge of technical issues. All the instructors at the House of Technology are women, who, in addition to having an interest in technology, are also trained teachers from the pre-school level up to university level.

The Women's Resource Centre of Kristianstad: "Sesam"

Kristianstad is a medium-sized city of Sweden with its 73,000 inhabitants. It is the local centre of the surrounding agricultural district. Economic life in Kristianstad reflects this geographical location and is dominated by agricultural industry and county and local government administration. The entire Kristianstad County has 294,000 inhabitants.

In order to support women in the private enterprises, SESAM, the Women's Resource Centre of Kristianstad County has been founded. Its task is to promote and follow up different development projects, as well as to encourage and pursue competence development, and to monitor and stimulate the creation of knowledge in fields that women feel are important. In other words, SESAM strives to stimulate new knowledge, and to integrate a female perspective in all activities. SESAM is oriented to assisting all women in Kristianstad County in trade and commerce in both technical or non-technical fields.

The staff of SESAM consists of four contact persons with their offices in different areas of Kristianstad County. Assisting these contact persons is a reference group. The contact persons have started to develop a network. One of their first tasks was to find out what the prevailing atmosphere was among women who own business enterprises. There are businesswomen who would like to learn to make presentations in front of a group, or who want more knowledge of economics and finance from a woman's perspective. In contrast to men, there are many women who have two parallel business interests. There is often no chance to support oneself on only one of these business operations, but usually on both in combination. Examples are one woman who has a catering firm and a secretarial bureau, another woman who operates both a mail order business and a health institute.

The task of SESAM, as mentioned above, is to support women in these niches. Men often have the attitude that it is impossible to be involved in several different businesses at once. Women who are already established can function as mentors for those women who are interested in starting up on their own.

The Kristianstad "Break Away" Project

From the spring of 1994 to the spring of 1995 the government employment service agency in Kristianstad is carrying out a project directed at unemployed women in the health care sphere, called the Break Away Project. The number of unemployed women in health care amounted to 1,000 at the start of the Project in April, 1994.

The intent of the Project is to improve individual qualifications and motivation for the participants to "break away" from their old vocational self-image and take new steps toward a new vocation where job opportunities exist today or will exist in the future.

The Break Away Project has been successful and in many respects its work can be considered as pioneering. Of the women who have participated up to now in the project (120 women), 75% have taken those first steps toward a new vocation, thus breaking away from their previous vocational self-image.

The employment agency works with groups of 20 unemployed women in each group. The course that the participants attend is four weeks long. During the first week and the final week of the course they work intensively with questions such as "What is self-confidence?", "Who am I?", "Want to—Dare to—Choose to", "Power of Positive Thinking", "Fear of Change", "Break Down Féar with Knowledge" and "Personal Communication". During the second and third weeks the participants alternate between listening to guest lecturers and study visits to different regional industries.

Women often have a difficult time of seeing themselves working in a technical vocation. A whole new and strange world is opened for the women who come from health care vocations as they participate in study visits to different industries. Not many of the women have seen an industry from the inside.

Two persons at the employment agency follow the progress of each woman until the goal is achieved, i.e. a job. Finding a job may take more than only the four weeks set aside for the course. However, a job is only one of the goals of the project. Those who have participated in the project have accepted a new way of thinking about themselves and about their labour market opportunities. The women have been able to see new interests and to strengthen their own self-confidence, and have been able to set new goals for their personal futures. Also, the friendship and feelings of community within each group have been important ingredients for success.

Evaluations have shown very positive results. Among the women who participated in the course in the autumn of 1994 there is a tendency today, when their new knowledge and impressions have had the chance to develop and mature, to be interested in training for and obtaining more information about technology and industry.

Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Turkey

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Introduction

In today's world, major changes are happening in the traditional position of women, they now see their traditional positions as insufficient, and they want to play active roles in social and economical areas. As a result of this, the roles assumed by women in social and economical life are gradually gaining importance and women are increasingly participating in the business world.

Having entered a rapid process of progress and development, Turkey is aware that education is the main driving force of development. Efforts were made to provide equal opportunity in education, and within this framework, measures are being taken for girls and women to effectively participate in the process of education.

According to the census of 1990, Turkey's population was 54.5 million and 27.6 million of this figure consists of women. Since Turkish women were neglected in social, cultural, economical and judicial fields during the pre-Republic period (before 1923), the modernization process of the Turkish society has been delayed. With the foundation of the Republic in 1923 many rights have been provided to Turkish women; helping lift the social status of Turkish women. However, due to reasons such as the traditional nature of the Turkish Society, women's duties in the family and insufficient education, Turkish women have been unable to take positions in society at the desired level.

As a result of contemporary development, a need for a qualified workforce has arisen in sectors of service and industry this need creates new fields of employment mainly for women who have received professional education. At present, however, girls are unable to benefit from existing education opportunities as much as boys.

The problem of "inequality of opportunity in education" in Turkey, is not merely a problem concerning the inequality between the male and female population. Due to low school ratios, specific distinctions exist within the male and female populace groups in benefitting educational opportunities. Factors such as the place of residence (rural, urban), the educational levels of mother and father, and their families socio-economical positions all impact on this matter. In some situations, the attendance ratios of girls can be higher than boys. For example, the transfer ratio to intermediate education of girls residing at cities who have graduated from primary education, is as twice as that of primary school graduate boys living in villages.

The vocational-technical intermediate education institutions are places where an increasing sex discrimination exists in the distribution of boys and girls with respect to school types. This situation is mainly related with the structure of the vocational-technical intermediate education institutions, which apply different programmes to boys and girls . For example, at schools for professions traditionally accepted as "men's professions"' 92.1% of the students are boys. Similarly, at schools for professions traditionally considered as women's professions, 98.9% of the students are girls.

Turkey is a country which has allowed women to actively participate in political life as early as 1930's. The Municipalities law in 1930 gave the Turkish women the right to vote in the municipal elections of 1932. In 1934, the women's right to vote was extended to cover the general elections. Today Turkey is one of the very few countries which has a woman head of government. Mrs. Tansu Çiller has been the Turkish Prime Minister since 1993.

Factors Determining the Orientation of Girls and Women towards Technical and Vocational Education

Sociological Factors

Training and education of women not only enable women to participate in the progress of developing countries like Turkey, but it also becomes important in promoting social development.

Women who work, endeavour to play their housewife and mother roles as well and therefore are apt to choose fields which are not likely to limit their basic role in the family life.

In recent years, Turkish families have a growing tendency to have their daughters educated as well as boys allowing girls to receive education in non-traditional fields. A study of the Ministry of Education shows that the proportion of girls who were enrolled in and received diploma of primary, secondary and high schools as well as in university between 1923 and the present time has continuously increased and the most significant change occurred in the period between 1970-1980.

In areas such as teaching and social studies, which are traditionally regarded as careers for women, there are fewer females than male students. There is a slight rise in the number of females in management and administration fields and some decline in the number of females in mathematics and law, all of which are traditionally believed to be professions for men.

According to 1982 statistics, 98% of the 26,000 nurses and assistant nurses were women; 100% of the 12, 698 midwives and approximately 53% of 3,876 pharmacists, 29% of the 20,047, academic personnel in universities, 7% of the 3,481 forestry engineers, 5% of the 2,525 electrical engineers were women.

The number of personnel trying to develop a profession in the public sector increases more rapidly that observed in other fields. Between 1938-1980 the number of female public employees increased 24 times. This increase was as 8 times for males. Also the level of education of female government employees is higher than males. While 45.1% of male public employees are high school graduates, 68.5% of the female employees have high school or higher education diplomas.

Labour Force

In Turkey, there are various reasons negatively affecting participation of women in labour force. The most important of those are the requirement of looking after young children, the low educational level of women, negative affects of the market, the lack of part time jobs, the low rate of increase of positive changes in customs and tradition to allow women's participation in labour force.

According to recent data, in 1990 women constituted 34.7% of the labour force, which further dropped to 31.9% in 1994. One of the reasons for this decrease is the rapid urbanization observed in Turkey. While women takes active part in production in rural areas, partly because of their low level of education, they face difficulties in joining economical activities in urban areas.

Between 1960-1985, the labour force working in industry has increased by 232%. However, out of these new labour opportunities, women could make use of only 13%.

In the last 40 years among the women working in industry, 95% on the average have been working in the manufacturing industry. Women are considered to be providing cheap labour and causing less problems. Women workers are therefore preferred by the labour force is that they fill low level jobs in the hierarchy. The women who have administrative jobs or technical jobs form only 18.2% of the women labour force.

Education

The educational system in Turkey can broadly be defined in two parts; adult education and formal education. Formal education covers pre-school education, primary education, secondary education and higher education institutions. Adult education covers all educational activities beside or outside formal education. Education at all levels is provided free in schools operated by the government.

Vocational and technical high schools provide specialized instruction with the aim of training qualified personnel. The organizations and periods of instruction of these schools are different. Most of the vocational-technical high schools are administered by the Ministry of National Education, but other ministries and institutions also administer certain schools to train personnel required by their organizations.

In all levels and types of education, the schooling ratios of women are lower than men; however sex is not the only factor forming the distinction in benefiting from educational opportunities and possibilities.

The distinctions between the ratios of girls and boys are even more specific at vocational-technical lycee types. This situation is mainly related with the structure of vocational-technical intermediate education institutions, which applies different programmes to boys and girls. For example, at schools preparing students for professions traditionally accepted as "Men's professions"(Industrial Vocational School, Technical high school, Anadolu Vocational High School, Anadolu Technical Lycee), 92.1% of the students are boys. Just the same way, at schools preparing students for traditional women's professions (Girl's Technical Education School, Girls Vocational High School, Girl's Technical high School, Anadolu Girl's Technical High Schools), 98.9% of the students are girls.

On the other hand, at Trade and Tourism Educational Schools, the ratio of girl students (51.5%) exceeds the ratio of boys (48.5%). However, according to different school types in this group, the ratios of girls and boys also show distinctions. For example, while girls form 46.2% of the students at Trade Lycees, their ratio drops to 13.5% at Hotel Management and Tourism Vocational High schools; in spite of this, their ratio rises up to 90% at Vocational Schools for secretaries. Although, the words "boy's" and "girl's", indicating sex discrimination, have not been placed in frond of the names of these high schools, male and female children either select or are forced to select the schools they are to attend according to the traditional view of female and male professions.

Even though general tendencies are as given above for the last 15 to 20 years, practice has been started for accepting boys at girls vocational-technical high schools. However, it is seen that the practices were ineffective in changing the traditional gender compositions at these schools. The ratio of boy students at Girls Technical Education High Schools is 1.1%, and the ratio of girls at Boys

Technical Education High Schools is 7.9%. However, a fact students attending Boys Technical Education High Schools, the 23,909 (7.9%) girls is close to half of the 53,082 students attending Girls Technical Education High Schools. We may accept this as sign that the traditional perceptions based on vocational sex discrimination are changing.

Among the 1,484,249 trainees registered at extensive education institutions, 59.8% were women. However, vocational sex discrimination continues also at these institutions. At the Public Education Centres, which also have the largest number of trainees, the ratio of women climbs up to 91.9%, but the programmes open to women are generally "house wife duties" or "extra income-bringing skills." Even so, for some time, it has been seen that men-oriented vocational training courses were introduced at these centres and women were also attending them; in the same way, it has been seen that men have also been attending certain courses deemed as "women-oriented." Even if the related numbers are low, this can be considered to be a development.

Table 1 ***Student numbers according to type of school at vocational technical lycee level by sex, 1991-1992***

School type	Total numbers of students	Boys	Girls
Girl's Tech. Educ. Sch.	53,082	1.1	98.9
Boy's Tech. Educ. Sch.	303,354	92.1	7.9
Trade and Tourism Educ. Sch.	161,530	48.5	51.5
Religious Educ. Sch.	119,285	72.5	27.5
Medical Vocational Lycee	160	-	100.0
School For the Handicapped	46	73.9	26.1
Private Vocational Tech. Sch.	1,628	60.0	40.0
Other Ministries	48,054	27.2	72.8
Grand Total	687,139	66.8	33.2

M.E.B.

Girls Vocational-Technical High Schools, have implementing various programmes facilitating girls employment in industry and service sectors. Examples to these programmes are Textile Dye Prints-Patterns, Ready-to-Wear Clothing, Leather Ready-to-Wear Clothing, Food Technology, Electronics, Graphics, Mechanical Drawing, Construction Drawing, Chemistry, Hotel Management and Tourism, Textile Quality Control, Fashion Designing, Textile Designing, Traveling Agency Management, Interior Decoration and Restoration.

Future Strategies and Plans

In 1990, The General Directorate of Women's Status and Problems was established by a law passed by the parliament. It is responsible for the development of women's status in the society, and for finding solutions to problems observed by Turkish women. The Ministry of National Education and the Girl's Vocational and Technical Education Directorate undertake the responsibility for organizing the educational activities for women and girls throughout the country.

Recently, some graduate and post-graduate level programmes have been established at prominent Turkish universities. Among those, research centres of Istanbul University, Marmara University, and Ankara University study women's problems. A graduate programme on women studies was established at the Middle East Technical University in 1994.

Turkey ratified the "Convention on the Elimination of All Forms of Discrimination Against Women" in 1986. The Convention states that women should have equal rights with men in entering all kinds of educational institutions, in general and vocational education, in applying for and receiving scholarships, and in attending extra-curricular activities. It also requires that dismiss ratios of girls and the number of girls leaving schools should be brought down, and women should have no difficulty in getting special education including family planning.

Research performed on the future trends of the Turkish economy suggests that the number of women working in agriculture is going to drop, while a sharp increase is expected in the number of women working in services. The development expected in World Economy and International Trade, the widespread nature and effects of T.V and media, the wider acceptance of various human's right concepts are expected to have positive effects on women's participation in economic life.

In order to develop the vocational and technical education system, an "Apprenticeship and Vocational Education Law" was accepted by the parliament in 1986. This law has drastically changed the Turkish vocational and technical education systems bringing many innovations and reforms. It has helped the schools and the industry in forming an integrated system providing part-time jobs and summer practices for vocational and technical education students are now better guided in supporting the theoretical education with practice, in learning how to work in a group, and in learning how to work independently.

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Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Argentina

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Introduction

The question of the woman in regard to the equality of opportunities is complex. This is because a woman tries to perform her traditional role in her private life and at the same time, a changing role in her public life. Flexibility is a characteristic of women, who must carry out, at the same time, their role of mothers, wives, workers and professionals. In addition to these stereotypes, the realities of the labour market and the life cycle of women (graduation of school, marriage, child-bearing, etc.) often prevent women from full range of choices in their career and life.

Women's life cycle can often explain their rate of participation in the labour market; we can see the fall of this participation rate in the age group of women who raise children. This also explains the phenomenon of the feminization of some specific jobs like teaching.

The Argentine Republic has not been exempted from the social gender biases which gives managerial and political positions to men and low status jobs to women. Most women are employed in social services and public administration. Moreover, women are one of the vulnerable social group to the socio-economic crises which is structural in most countries in Latin America.

It is important to state that the role of the professional working women is being publicized by the mass media through debates and essays showing a new generation of women with professional careers who are not as objects waiting for marriage.

Factors Determining the Attitude of Girls and Women towards Technical Education

Economic Factors

In Argentina the unemployment rate was 6-7% but it has now increased to 12%, while women represent 39% of those unemployed. The contribution of women to national economy is estimated as between 28-49% of GNP, though women represent 55% of the population. It is clear that this under-representation of women in productive activities has a negative effect on the socio-economic development and is corresponding to the low level of participation of women in the labour market and in vocational education.

There exists the growing concern that the persistent economic disparity would be a serious obstacle for the further scientific and technological development. It is important in the development and implementation of policies to increase equality of right to women in this area, taking both the pedagogical issues and labour market practices into consideration. Efforts to increase the participation of women in science, engineering and technology thus far have had little success. The labour market in turn restricts the access of women to certain types of activities. Women tend to choose occupations which allow nurturing such as teaching.

Social Factors

There still exists social and cultural stereotypes that women are suitable for the professions considered as "women's job." These gender stereotypes have a great influence on the choices of fields of study by girls and boys.

There are also resistances from women to work in technical employment which is thought of being against the traditional stereotype of women as mothers and housewives. However recent population census shows that women act as bread-winners in quite a few number of families.

Educational Factors

There is agreement about the strategic role that education plays, particularly in relation to its articulation with the labour market. The participation of women in technical education is a complex question because it involves educational and occupational strategies in which gender is an important aspect.

It has been observed that many women prefer taking high school studies which lead to university or professions in service sector, while men prefer the technical areas. The statistics indicated that 18% of women completed high school compared with 36% of men. Of those women who continued with post-secondary studies, only 21% chose a technical programme. In the technical programme, women have shown very little interest in those fields of study most popular with men—automotive, electricity, electronics and mechanics. The greatest interest for women was in administration (55%), construction (15%) and chemistry (10%). Other areas of interest for women are: graphic arts, geography, food industry, jewelry, watch-making, optics and public relation.

In basic education, girls obtain comparable or even better results than boys. However, there is a notable decrease in this when they finish high school. They tend to focus on areas in humanities or social sciences. As explanations of this phenomena, the following factors have been identified:

- Women are biologically and naturally different from men, which has long been utilized as an excuse of exclusion of women from men dominated activities;

- Social and traditional expectation on girls at home and school;

- Existing discrimination in the labour market and academic institutions which discourage women to dedicate themselves to science and technological fields.

The obstacles which limit the participation of girls and women in technical courses can be summarized as:

- Absence of information on the available technical courses;
- Inequalities of opportunity in the labour market;
- Legislative difficulties;
- Traditional perception on female professions.

The school course and the labour market were treated from the paradigm of the male population of universal character. This paradigm is the one which limits the constructions of explicative hypothesis of this process, that is why the production of knowledge has to change the fundamental idea which presumes the incorporation of the subject of gender within the processes of traditionally denominated Sexual Division of Work. Under a feminist view, this could be called generic division of work.

A research made by CONET investigated the factors which affect the low participation of girls and women in technical and vocational education. It was the opinion of those mid-level officials interviewed that the reasons for the limited participation of girls and women in technical courses include: the absence of information and unequal opportunities in the labour market and also in the existent legislation, cultural problem of the institutions which keep on maintaining the traditional idea on female professions and existence of discrimination against women to find a job.

Activities Promote the Equal Access

The Convention on the Elimination of All Forms of Discrimination Against Women was ratified by the Argentine Republic in March 1985. That moment coincided with the end of the dictatorship and new democratization of the country. In March 1991, the government created a "Coordinating Board of Public Policies for Woman." Several projects have been launched to eliminate discrimination against women.

In June 1991, the Ministry of Education launched a programme to guarantee the equal access of girls and women to education. The aims of the programme are:

- To highlight the contribution of women to socio-economic development;
- To motivate active participation of both sexes in civic life, responsibilities of family life and breeding of children;
- To integrate women into the process of decision-making.

The programme is multi-dimensional, involving curriculum development, teacher training, research, production of materials and evaluation of both the formal and non-formal sectors.

The Federal Law of Education (1993) guaranteed equal access of girls and women to educational opportunities and eradication of sexism from all teaching materials. In this context the following actions have been taken:

- Teacher training workshops (2,800 teachers participated);
- Curriculum guidelines;
- Research on gender and education;
- Campaign to sensitize the educative community;
- Multi-media programmes on "women and communication."

In the field of technical and vocational education, the actions taken include:

- Programmes to articulate technical/vocational education and the world of work;
- Issue of gender in technological area;
- Publication of materials for the campaign of gender-sensitization;
- Development of a plan of action to encourage women to enter technical professions;
- Programmes to assist women with severe financial handicaps;
- Elimination of sexist language from all administrative acts, etc.

Future Strategies

- Introducing technology as part of basic education;
- Strengthening provincial management units;
- Strengthening management of information;
- Conducting more research on gender;

- Producing of materials for technical training;
- Providing assistance to financially handicapped women;
- Improving information network about education and the labour market.

Promotion of the Equal Access of Girls and Women to Technical and Vocational Education in Brazil

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Introduction

Since World War II Brazil has succeeded in democratizing and modernizing education considerably. A good indicator of educational opportunities in Brazil is the schooling index. The ratio of schooled individuals to the general population, has jumped from 9.05 per 100 in 1940 to 21.84 in 1980.

Despite educational reforms and a relative increase in educational opportunities, the Brazilian system of education still withholds education from large segments of the population and favors others, thereby conferring an elite status on a fortunate few. Elitism within education has compelled Brazilian educators to analyze and re-define priorities and has been the basis for political-action reform proposals. Many have argued vehemently that the Brazilian educational system must make schooling to all Brazilians.

In addition to a general elitism in education, studies conducted in Brazil have indicated that when women are in the same classroom with men, there is a difference in teaching and distribution of knowledge. Later results show reduced achievement of females.

A special point of demarcation which has contributed to inequity in the Brazilian educational system occurs as students enter and graduate from secondary programmes. Since World War II secondary education has been accessible increasingly only for upper and upper-middle class students. Women have done less well than men in the Brazilian secondary education programmes.

Over the past several decades Brazil has embraced a policy of national development that has led to intense urbanization and the pursuit of an expanding economy. Unfortunately, Brazil has responded to economic, social, and cultural demands of successful urbanization by scarcely altering its educational system, a system that many believe was already inadequate (Rosemberg, 1992).

Despite some increased educational opportunities, the level of education in Brazil remains low. In 1987, the average Brazilian had only 4.5 years of formal education (Ferrari, 1985). Recent surveys also point to many persistent and crucial distortions in the education system.

Some writers have noted emphatically the inequity of educational opportunity among the Brazilian population. White urban residents in the south have access to the best education. There is also a strong positive correlation between education and a family's socio-economic status. Generally speaking, the children in families whose monthly income is at least the equivalent of two minimum wage salaries receive at most an elementary education. Only those students whose families make more than the equivalent of five minimum wage salaries have the possibility of considering secondary and higher education.

On a more general level, Brazil's education system is claimed to be "somnolent" and "morose." By this, they meant that Brazilian education has been asleep and has failed to keep pace with the demands of a changing Brazilian society. In sharp contrast to the educational needs of the Brazilian population, the educational system has stayed remarkably attuned to the demands of society's most influential sectors. In fact, educational opportunities exploded in the second half of the twentieth century, but in spite of numerous reforms the expanding educational system remained essentially rigid, selective, elitist, and overwhelmingly academic.

Systematic research on gender and equity issues in Brazilian classroom settings does not exist. Half of all Brazilian students in 1982 were women. Nonetheless, the system of formal education discriminate against women in such a way that the education of men and women is fundamentally different. For example, Brazilian schools continue to reinforce sexual stereotypes. This means that women students are viewed as passive, dependent, and less capable than their male counterparts. Different hypotheses about how these stereotypes developed in the Brazilian educational system can be generated, but specific information on classroom practices which subtly or directly result in discriminatory outcomes is unavailable.

The growth of gender consciousness in Brazil was evidenced by the participation of feminist activists at the thirty-second annual meeting of the SBPC (Brazilian Society for the Advancement of Science) held in Rio de Janeiro in 1980. This activism gave greater visibility and credibility to women's issues. Many have contended that gender equity in Brazil will not be achieved until women are integrated as equals into the power structure, can represent themselves, and work directly on behalf of the interest of women.

Finally, access to secondary vocational training is very restricted for Brazilians, especially women. Secondary vocational education in Brazil is male dominated and includes such areas of study as mechanics, electronics, and construction. As a result, few women (even from middle—and upper—class homes) have been able to secure access to quality secondary schools and advance to positions of influence in government and industry.

The purpose of this paper is to present a brief overview about women in Brazil. In order to situate the women and girls in technical education data will be presented from the Centro Federal de Educacao Tecnologica do Paran—CEFET-PR (Paran Federal Center of Technological Education) which is a model technical school in Brazil and it is a starting point to many changes in this area.

Factors Determining the Orientation of Girls and Women to Technical and Vocational Education

In an address to the United Nation, Dunlop (1979) pointed out that "···women and girls constitute one-half of the world's population," but "···worldwide, women attend school half as often as men. Two out of every three illiterates are female." A great concentration of these illiterate women are in third world countries. In Brazil and Mexico alone, there were 93,686,871 females in 1980. In reality, however, only a minute percentage of these women ever have the opportunity to pursue a career through education. The number of women in these countries who even finish the 8th grade is very low. In 1984 only 3 million out of 110 million Brazilians attended high school. Considering that only roughly one-half of these people were women (i.e., 55 million), it is possible to conclude that only 2.3% of all eligible women were educated above the 8th grade.

Some of the major barriers to education women face in third world countries today are: i) existing laws, ii) the influence of the Church, iii) cultural expectations, and iv) poverty. Existing laws, the Church, and cultural expectations prevent the education of women and affect the economic situation in Brazil. Illiteracy breeds poverty and poverty breeds illiteracy.

Brazil holds one of the highest foreign debts in the world, which in turn has led to tremendous poverty internally. In an United Nations' study (Dunlop, 1979), it was mentioned that:

> *"Where there is poverty, it is women who suffer its worst effects. Where there is prejudice, it is women who bear the heaviest burden of discrimination. To be born female is to be born with less scope for personal development than males, with less likelihood of ever enjoying such freedoms, responsibilities and privileges as are available."*

Many laws in Brazil were written specifically so men could protect their position of domination over women. In Brazil, for example, The Patrio Poder has established that the husband is the legal "head of the marital union," in authority over children and general family matters (Civil Code, Art. 380). Women can administer common goods only with a husband's permission or in his formal absence, although he can dispose of common goods or her property without her permission (Civil Code, Art. 274).

In reality, the treatment of women and wives in particular, can be even worse than the law itself. In Brazil, marital rape is not recognized. Furthermore, under a legal plea of "defense of honor," husbands who murder their wives are very rarely indicted and/or convicted (Prado, 1984).

Another obstacle to education of women in developing nations and Brazil is the Roman Catholic Church, particularly, in the rural areas of the country, what the Church (the priest) dictates is more important than the law. And, what priests prescribe is that women have to be submissive to their husbands, claiming this is in accordance with the laws of the Church. In essence, the church asserts and solidifies laws of the State which ensure male domination over women.

Women's submission required by the Church (both to men's domination and to as many children as "God brings") is a major stumbling block to women seeking an education. Not only do the physical restraints of bearing and rearing many children exclude women from the classroom, but psychological constraints also are harmful. Women's attitudes about themselves and what they can do with their lives are especially limited. Perhaps most tragically the attitude of subservience is passed on, both overtly and covertly, to sons and daughters and with it the perception that the worth of males is greater than the worth of females. Throughout Brazil women and men are indoctrinated with a marianismo perspective. The marianismo view is the view that women gain respect and influence from their adherence to a chaste, home-bound, and apolitical existence. Women come to believe on a subservient life is the only desirable life for them.

Cultural expectations also affect women's educational status. A prevalent characteristic of Latin American culture is "machismo" —a word which encompasses many behaviors, but has at its roots a philosophy of disregard for women. From the Brazilian perspective, a "macho" man uses women, but does not respect them. To be macho is to have power over women. In everyday terms, to be macho means to keep "your women" in the house, to tell her what to do, and to require her to be sole housekeeper and child care provider. To be macho means making all the important decisions of the household.

The ways machismo has become a barrier to education for women are evident. If women are unable to leave the house, they cannot get to school to be educated. The man controls the money and the decision making. Without fiscal resources and family support for girls and women to go to school the possibility of overcoming illiteracy, much less receiving an advanced degree is minimal. The economic dependence of women makes them more dependent on their families, more vulnerable to sexual exploitation, and overall weakens their social and economic status.

To change this situation there is an urgency to change Brazilian laws to protect women's rights. However, enforcement of the laws also is required. Enforcement implies changing attitudes. It is a dream to imagine that attitudes toward women will change overnight. There are three different conditions under which people predictably resist change: i) when the proposed change is not understood, ii) when the change being advocated appears to threaten basic securities, and iii) when the proposed change is perceived as being imposed. Consequently, any study intended to improve education for secondary students (men and women) must take these factors into account.

Reform of Technical and Vocational Education in Brazil

The Brazilian education system was criticized that until 1971 when a new education law was passed the different types of school supposedly available (i.e., secondary or academic, normal, commercial, technical-industrial, and agricultural) could have provided a great diversity of professional options for their graduates, but in reality nothing of the kind transpired. In fact, about 90% of all school graduates before 1971 were academic and aimed at preparing students for admission to the university.

In the 1970s a growing concern for vocational and technical education was voiced among the conservative political elite. The term "professionalization" was coined to describe this concern. The concept was to make secondary schools "terminal," and graduates of secondary programmes able to find jobs and compete as well-prepared "middle-level" professionals.

The Centro Federal de Educacao Tecnologica do Parana—CEFET-PR (Parana Federal Center of Technological Education) is a technological center which offers both secondary and higher education. CEFET-PR is considered a model school in Brazil, and its graduates are regarded as the most qualified technicians available to industry. This institution, as others in Brazil, has a predominantly male population of students, faculty, and staff. CEFET-PR, with headquarters in Curitiba, is an organization of a special kind. Linked to the Ministry of Education, CEFET-PR has administrative, financial, didactic, and disciplinary autonomy.

CEFET-PR was established originally (1909) for students of low socio-economic status. It is a public institution, subsidized by the Federal government and is tuition free. Over the years CEFET-PR has changed. Presently, in order to enroll in any of the programs at CEFET-PR, a student has to take a very competitive entrance exam, which is given twice a year. As a result the majority of CEFET-PR students are graduates of private elementary schools, schools which offer higher quality education than public schools. Enrollment in 1995 totaled 10,321 students at secondary level, 2,274 students at undergraduate level and 314 graduate students.

Future Strategies

Considering the lack of data regarding girls and women current situation in terms of access to technical and vocational education and the importance of these issues in Brazil the following strategies will be addressed by the Masters program in Technology at CEFET-PR:

To promote interdisciplinary research about girls and women technical and vocational education related to work, society and other issues;

To promote wide discussions through seminars, discussions and conferences involving other technical institutions and other representative bodies, such as women's organizations, the church, legislators, trade unions and others;

To create a data base at CEFET-PR in order to gather information about women regarding technical and vocational education in Parana State and if possible extending to the country as a whole;

In order to accomplish to a great extent those suggestions stated above, it is crucial to have financial support from Brazilian agencies and international agencies as well.

Appendix :

Barriers to Participation of Women in Technological Education*

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Introduction

The significance now attached to increasing the participation of women in technology and technological education reflects two world-wide trends. The first is the way in which technology is permeating all domains of activity in the contemporary world, with pervasive roles in national economic development and in our everyday experience. Not only are occupations involving technology on the increase, but populations in general, men and women, are engaging with the processes, products and effects of technology on a day to day basis. The second is recognition of the need for action by the international community in securing the advancement of women and the elimination of gender-based discrimination, particularly in the fields of education and employment.

• This work was accomplished by the author under a contract with the Commonwealth of Learning (COL) in 1994. COL and Dr. Evans kindly agreed to have this paper included in this monograph.

Women choose to enrol in greater proportions in arts, human studies and social sciences than they do in mathematics, science and technology, the world over. The origin of this underrepresentation of women has been largely structural, created in and through the social structures of institutions and the segmentation of the labour market, and internalised in values and beliefs about appropriate roles and expectations. These factors are manifested in a host of barriers to women's participation, both general and specific to the technological domain.

This paper, through selective review of literature and reports of significant action programmes, aims:

- to summarize and categorise barriers to women's participation;
- to develop a set of criteria to aid further investigation in different regional contexts.

Barriers to Participation

Cultural: common patterns in role and status of women emerge across countries, despite widely different circumstances. They reflect the cultural and cross cultural social norms and traditions by which the subservient status of women is maintained. In some societies these create "almost insuperable obstacles to women's participation in education" (Evans and King 1991). Analysis of participation rates in different social and cultural contexts show that they reflect closely the relative status of women and the power of tradition, e.g. Kember (1981), King and Hill (1993).

Attitudinal: perceived differences in male and female roles and capabilities, inculcated through socialisation in the home and family, reinforced through schooling, through vocational/career guidance services, through experiences in the workplace, peer pressure and through absence of female role models. Enormous motivation and self-confidence is needed to break through these barriers. Lack of confidence and self-esteem is itself a major barrier, and one which every successful initiative in this field has found it essential to address directly and specifically.

Qualificatory: lack of Maths/Science pre-requisites for entry to programmes is often perceived as a barrier, particularly by those involved in admissions to programmes (although evidence suggests that this is also perceived rather than real in some cases, Ellis (1987), for example, shows that women in the Caribbean attain higher levels of literacy and numeracy than males, and that in the CXC secondary Schools Examinations at General Proficiency level, a larger proportion of females were entering for chemistry and mathematics than males, and equal proportions for Physics. Despite this "the belief continues to persist that females are by nature technologically ignorant and unable to absorb scientific and technological information or to acquire technical skills"; in many countries as many women as men achieve general proficiency in Maths and Science, but remain grossly underrepresented in Science and Technology subjects at higher levels, once "choices" are made. Many women with university entrance qualifications in these subjects opt for human and social science courses at University level.

In other countries, social cultural and economic conditions conspire to encourage early termination of the education of girls. In Indian, Africa and Pacific cultures, it is argued that the effects of cultural sanctions on women's education are most marked, e.g. Commonwealth Secretariat, 1988. Low levels of general education are major barriers, which have to be tackled before the specifics of science/technology participation can be addressed. In the Middle East and North Africa, by contrast, higher proportions of women are found in science and engineering courses at University level than in many western countries. Nagat El-Sanabary (1993) attributes this to the good access to mathematics and science courses at secondary level.

Situational: the barriers faced generally by women in attending courses apply: family commitments, lack of partner support, financial, living in rural/isolated areas. Fees requirements are major barriers where women do not have independent control of resources, where they are dependent on male partners who are unsupportive. Male partners are more likely to be unsupportive of entry to non-traditional, male oriented spheres. (Ellis cites examples of suspicion/jealousy of male partners as well as ridicule). Women who do have their own source of income are also, on average, lower paid than their male counterparts. Poverty is a major situational factor in many regions. (Trivedi, 1989, states that the combined effects of poverty and social/cultural sanctions create almost insuperable barriers in parts of South Asia.

Social class factors also interact with gender in significant ways. High social class status of some women may remove some of these barriers; King and Hill point to the phenomenon of upper class women who buy in low paid domestic labour of other women in order to pursue their educational/career aspirations. This phenomenon can be found in many developed and developing countries.

Situational and cultural factors intersect in the barrier of significant distances to travel to schools and other educational centres; this is a major barrier for girls and women in, for example, India and Pakistan, as Caldwell et. al. (1985) and Shah (1986) report, respectively.

Institutional barriers: these are barriers which arise because of the ways in which institutions make their programmes available. Significant general barriers which apply to women are well documented:

- fixed hours;
- substantial attendance requirement;
- lockstep approach to curriculum; makes missed sessions hard to catch up on;
- lack of child care facilities;
- off putting, "unfriendly" course information;

These are exacerbated in the case of entry to technical and technological studies by:

- lack of female teachers/assumptions and attitudes of male teachers;
- male orientation in courses publicity/male "image";
- inflexible selection and entry requirements;
- often has large attendance requirement for practical skills/laboratory based work;
- male oriented language and male images in teaching materials;
- instrumental pedagogies and curriculum content which ignores the social context of technology.

King and Hill (1993) will present these various kinds of barriers as a series of disjunctions, all applying generally to women's participation, but applying particularly in the case of technological education.

The **disjunctions** are between:

- maintenance of formal entry requirements and overall level of educational attainments among women;
- domestication of women's labour and educational/career

aspirations;

- charging of fees and financial dependency/poverty;
- traditional curricula and experimental knowledge of women;
- instrumental pedagogies and women's preferred learning modes.

Significance of Barriers in Different Regional Contexts

The relative significance of these barriers will vary according to:

- the level of education and training envisaged;
- age of the women (young/mature);
- cultural/local context.

As King and Hill (1993) have stated, the barriers to women's education in developing countries are well known. What is significant is the relative strengths of the barriers in different regional contexts.

> *"The challenge is to identify which barriers are the prime ones in specific settings of sub populations and which policy measures are appropriated and affordable."*

Three Cases: Africa, Caribbean, and South East Asia illustrate the disjunctions outlined above, in regional context

Africa:

In Africa, Williams (Vice Chancellor of University of Benin) has shown that the "world-wide problem of low participation in ST education is compounded by low enrolment rates of girls in formal education, when compared with boys, with the gap widening at the higher level of education. The implications are increasingly serious as women's contribution to agriculture and commerce is constrained by this lack of access to STM education. Williams (1987) identifies the barriers as follows:

- relegation of women to the home;
- parental perceptions of costs/benefits of educating girls, affecting low income families particularly;
- patriarchy, female seclusion practices and early marriage;
- fear of cultural loss on emancipation;
- double/conflicting demands on girls of traditional and school learning;
- discriminatory labour market practices;
- irrelevance of curricular presentation in STM to girls' views and experiences of the world;
- masculine image of science projected in text books, media and popular assumptions;
- poor facilities, including teacher-supply, teacher quality and equipment;
- nature of STM occupations which are not easily combined with child-rearing and child-care;
- lack of role models and careers counselling.

Caribbean

Ellis points to the rapid technological developments which are bringing about change in Caribbean societies, and the slow rate at which women are penetrating the male dominated occupations in the fields of science, technology and trades.

Within the formal system, girls attend school from an earlier age, for longer period and achieve higher rates of literacy and numeracy than do boys. At secondary and also now at tertiary levels the achievements of female students are higher than those of male students.

Obstacles and barriers are identified as:

- social pressures which operate inside and outside the classroom;
- masculine image given to science and technology in the curriculum;
- lack of female teachers and, more widely, absence of female role models;
- teacher-pupil interactions/inappropriate assumptions made by male teachers;
- "counselling" on career choices carried out informally by the above-teachers;
- peer pressure and ridicule;
- perceptions of admissions tutors;
- lack of appropriate vocational guidance and careers counselling.

South Asia

Khan (1993) states that poverty is the most pervasive barrier to the education of South Asian girls and women. Other cultural factors such as early marriage, concern for girls moral and physical welfare limit and in some regions the practices of the segregation and seclusion of women restrict education. Khan also observes the way in which cultural practices are altered by economic conditions, citing the example of families actively promoting the education of their daughters to increase their chances of marrying a "white collar" husband, while poor families in Nepal will concentrate all their resources to educate one son through secondary education.

Women lag far behind men in terms of numbers of years of schooling and in grades achieved throughout the region, with the exception of Sri Lanka where enrolment in secondary education is high, with girls' enrolments reported to surpass that of males and research evidence (Jayaweera, 1991) that type of school and socio-economic status of the student are more important than gender in influencing student achievement in school. Throughout most of the region, however, the educational base for women's participation in technological studies and technological work is very limited.

At secondary level barriers can be summarised as:

- demands for females to care for siblings and do household/farm work;
- withdrawal of girls at puberty and early marriage;
- direct costs;
- location, physical facilities and hours of instruction;
- privacy of girls.

There are considerable variations according to social class, reflected in female enrolment in higher education, which is small and heavily weighted towards high income, wealthier families.

Labour market discrimination acts as a further barrier; women were hired less, often received lower pay for equal work and were in lower grades of post despite equal or better qualifications, at the time of Raj's survey in 1982. The exception to this was in scientific and medical fields, where women were more highly paid; they were however paid significantly less in engineering and technology and the same in teaching, according to UNESCO study in Pakistan (Hussain et al 1987).

Given the nature of the barriers, Khan has argued that reorganization of existing resources and policy changes requiring few additional resources can achieve as much in increasing enrolments as large expensive programmes, particularly when the former involves local participation. The Women's University in India is reported by Trivedi (1989) to have made substantial progress in the last few years, and many women have taken advantage of its outreach facilities.

Similarities in the barriers faced by women in the three regions are obvious. Differences lie in the strength of the cultural factors and variations in the extent and patterns of poverty. In all regions, there are considerable variations by social group. In Africa and South East Asia the low base level of education of "ordinary" women is an all pervading factor-a gender gap which must be closed if women's involvement in technological education is to be increased significantly.

Programmes to Increase Women's Participation

There is great diversity in cultural and regional contexts. In developing countries, much can be learned from review of programmes and policies designed to promote women's participation in education generally. King and Hill have identified the following strategies as successful in industrial countries:

- secondary and post secondary scholarships;
- vocational/technological programmes linked directly with employment, with a strong recruitment and guidance element.

Bellew and King (1991), following extensive research in developing countries from all regions, found that empirical evidence was lacking which could enable strong conclusions to be drawn about the relative effectiveness of measures designed to increase women's and girls participation in education generally. Some conclusions could be drawn about broadly effective or ineffective strategies however. Effective strategies were scholarships, culturally appropriate facilities, use of female teachers, alternative schools with flexible schedules, and vocational training linked directly to employment and recruitment. Ineffective strategies were free uniforms and vocational training which were not linked into the economy. Curricular developments such as programmed instruction and gender-neutral curricula, and information comparisons, had insufficient evidence to support or reject them as useful strategies.

The successful strategies are clearly focused on the major disjunctions: scholarships to address barriers of poverty and financial dependency; female teachers as role models, to challenge traditional role assumptions; alternative, flexible provision to accommodate the double demands, expectations and constraints placed on many women; direct linkages into employment to counter barriers of employer resistance and other social pressures on completions of training.

In programmes designed to promote participation in technological education, three categories of direct provision for women can be identified, for the purposes of this paper.

- *Bridging programmes:* updating and re-entry for women already qualified in technological subjects;
- *Conversion programmes:* first entry to technological education, for mature women, early school leavers and "mainstream" school leavers who wish to change direction;
- *Community-based, role related programmes:* geared to local/environmental issues of direct relevance to the lives and more traditional roles of women.

Bridging Programmes and the Role of Distance Education

That the Open University in Britain has had a high degree of success in recruiting women students is well known. However its open access policy alone was not effective in attracting women into non-traditional subject areas such as technology. Women students were less aware of scientific and technological advances and related to technology as "passive consumers" according to Swarbrick (1987), who also reports that take-up of technology courses through the Open University was typically from male employees updating and improving their vocational qualifications while at work, with sponsorship from their employers in many instances. Barriers to female participation included "loss of personal/professional esteem" and fees when household budgets were stretched. The Women into Technology Project began as an updating course designed to help women who had qualified as engineers to bridge career breaks with updating education. The initiative was reported to have been greeted with scepticism initially, on the assumption that few women were in the intended target group and those that were would not be interested. (The programme was extended subsequently to encourage new entrants to technology, providing Conversion Courses of the kind discussed in the next section).

The courses had to take account of domestic commitments and the wide geographical spread of such a specialised audience, so Distance Education was seen as the ideal solution. Other features of the programme are:

- bursaries (non means tested);
- publicity appealing directly to women;
- building up of confidence and strong sense of group identi-

ty (with small groups led by women who had completed the course successfully);
- providing supportive network of peers;
- women staff.

The programme has recruited well, given the restricted target group and has continued to grow. The key factors, according to Swarbrick were:

- Bursaries (independent of partner's salary) and;
- The prospects of career development, timed to coincide with children's progress towards independence.

Conversion Programmes

Where younger women tend to stay in full-time education beyond the minimum age in greater proportions than men, (e.g. Caribbean, Ellis, 1991) they can potentially build on a stronger general/academic base by entering training for higher technical/technologist level, but significant incentives are needed, together with appropriate provision designed to minimise barriers.

Rural women are doubly disadvantaged in terms of general educational attainment as well as in access to science and technology education. An Australian initiative for rural women involved a community-based Distance Education programme, characterised by its consultative approach to programme development and strong student support systems. The objective of the programme was to increase the numbers of women entering science and engineering courses. The target group is mature age women and school leavers who had left school too early or made inappropriate subject choices. It involves the use of flexible, self-paced study materials. Barriers emphasized in mounting the programme (Warner 1993) were lack of self-confidence in the women themselves, time pressures they felt themselves subject to, in combining study with other responsibilities, and the "innate conservatism," the greater belief in traditional values, of rural peoples. Distance Education was the obvious answer for the isolated rural communities in question; there were few, if any alternatives. The DE mode died, however face some significant problems. There were great constraints in the support that could be provided for the participants in overcoming their fears and lack of confidence an essential feature of programmes designed to facilitate women's access substantiated by much literature (e.g. McGiveney (1993), Lewis (1988)).

Features of the programme contributing to its success (as demonstrated by low dropout and programme growth) are described by Warner as follows:

- participants encouraged to recognise the skills and competencies they had gained as home managers, farm managers and carers;
- materials on study skills and materials explicitly designed for awareness raising on issues of the status of women;
- peer support through teleconferencing/informal networking/student volunteers;
- open access, with no entry hurdles besides that of gender.

By April 1992, there were 306 women in the programme, distributed evenly between age bands, declining after age 44. Results compared favourably with those of mainstream school-leavers, despite the open access.

Lessons learned, as identified by Warner, are that the self esteem-raising and study skills components are absolutely essential; that self-paced materials can encourage procrastination, therefore goal-setting and time management need to be built in; that there is a need to capitalise on governmental/institutional equity policies for funding and support. The criticism that these are simply "band-aid" programmes is countered by Warner, who argues that they do not preclude, and should run in parallel with, action to remedy the wider conditions which act to subordinate women and prevent their access to education.

Local, Role Related Programmes

A good example of this type of programme is provided by the Construction and Use of Alternative Technologies project in Guyana. This involved training for local women in the design, construction and use of appropriate technologies related to energy saving. Through this programme, Ellis states, women were exposed to the domain of science and technology in situ, developed relevant skills and were better able to understand the links between science, technology and their everyday lives. To build on these kinds of initiatives, they need to be incorporated explicitly in policy development in ways outlined in the Commonwealth of Learning document: Women and sustainable development (1994):

- empowering women as environmental managers within their communities through improved access to education and resources;
- establishing strategies to involve female professionals and experts in project planning through training of women and girls; employing and promoting women in these fields; encouraging sustainability by local participation of design and implementation.

The Interface Between Technical and Technological Education

The tradition Craft/Technician/Technologist boundaries are becoming blurred in the technological environments of the advanced economies: technical/vocational levels are now being differentiated according to general/specific competencies required (e.g. in U.K., levels I-V are specified, with I equivalent to basic skills, V equivalent to postgraduate level, by the National Council for Vocational Qualification).

At lower levels, moves to develop basic and broad "occupational competence" through flexible leaving programmes may create an upward pressure for further training/qualification. Projects in which supported self study has played a significant part should be given particular attention.

Fretwell (1987) has argued that competency-based individualised and mediated instruction should be used more widely in developing countries' training programmes, at it has many advantages over traditional training. Some of these advantages, particularly of flexibility and self-pacing, offer means of reducing barriers to women's participation. Other features such as traditional instructional procedures and top-down control (Fretwell 1987) are, by contrast, likely to reinforce barriers rather than reduce them (Hodkinson and Issit). More research is needed into the design and implementation of competency-based education for technical and technological education, in a way which addresses gender issues as an integral feature.

How Far Can Special Programmes Reduce Barriers? Some Conclusions

The cases show that special programmes can achieve results in facilitating the participation of women, both young and mature in technological education, under the right conditions. The main forms of direct provision are **bridging courses,** allowing qualified women to update their knowledge and skills with a view to reentry to the labour market; **conversion courses,** foundation programmes allowing mature women and school leavers who have either left too early or made subject choices they wish to change; **community-based programmes** providing basic technological education in a way which relates directly to women's traditional roles. The key lies in identification on the right conditions for these programmes. The first step is to establish the relative significance of the disjunctions identified earlier, and the specific forms they take in the given society and culture. The measures needed to tackle them can then be identified. If any of the disjunctions is "almost insuperable" then programmes geared directly to facilitate access will not be successful nor represent a good investment even if all the other disjunctions are effectively tackled. For example, distance education has been shown to be an effective means of reducing the disjunction between the domesticated role of women and educational/career aspirations, in the examples of bridging and conversion courses given above, by allowing women to combine study and domestic roles in a flexible fashion, while positioning themselves for new, non-traditional career opportunities as children become increasingly independent. While this disjunction can be effectively reduced in this way in the developed and some of the developing countries, the disjunction may be too great to deal with in this way in others, particularly in rural areas. For example, social taboos and cultural sanctions have been described as almost insuperable in parts of India while in Tanzania, Muro 1988, states that women in village-based communities are so weighed down with domestic and farming duties, they have no time or energy for studies of any king, and girls are withdrawn from schooling early to participate in these domesticate roles, essential to economic survival. For these women, community-based role-relevant programmes are more likely to be effective, although there is little evidence that they are stimulating entry into higher levels of education and training.

Many of the disjunctions can be overcome to some degree, however, by measures involving distance education. Distance education failure is likely to occur when western models are adopted without adaptation to the "acculturised behaviors" of teachers and learners, as Dunbar (1991) has demonstrated in Indonesia where the nation of social and learning behaviour and the strong oral tradition cut across the assumption of learner autonomy and relationship mediated through text.

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